July 29, 1957

PAPER TRADE JOURNAL

- Beginning a Groundwood Series
- Fresh Look at Total Marketing
- Skunk Bites Boy—But Glassine Helps
- Maintenance of Electronic Equipment
- Converted Products Trends

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ook at the Pulp Record. You'll see why so many of our customers have been ith us so long, some over 40 years. They know the vital importance of supplies from utstanding sources, in Bleached and Unbleached Sulphite, Bleached Hardwood, roundwood, Bleached, Semi-Bleached and Unbleached Kraft. They have the assurnce of excellent service developed by over 70 years of experience. Contact us today.

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Established 1886

WOOD PULP

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Central National Commercial Company, Inc.
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Central National-Gottesman Limited, London, England

Representatives in 55 Leading World Markets

PULP PAPER EXPORT CNC

Mill scale removal by Dowell started this new plant off with a $100,000 operating profit

Here's how the management of a multi-million dollar corporation used its knowledge of chemical cleaning to start a new plant off in the right way—in the black.

Following construction, and before the plant was put on stream, Dowell was called in to remove mill scale from the following systems:

• Ammonia Compressors Suction and Discharge Piping • Engine Water-Cooling System • Engine Oil-Cooling System • Engine Jackets • Hydraulic Oil-Cooling System • Oxygen Suction and Discharge Piping • Miscellaneous Piping • Product Lines to Storage • Miscellaneous Towers

The total cost of this mill scaling was approximately $5,000. But, once in production, this plant did not have a single major shut down for maintenance caused by mill scale. The plant management credits Dowell Service with netting the plant an operating profit somewhere between 10 and 20 times the cost of the chemical cleaning. This amounted to between $50,000 and $100,000 the first year.

This particular case history is about a chemical company, but Dowell has startling performance data to show you—from your own industry. That's because chemical cleaning is so versatile. Dowell engineers are experts in removing scale and sludge from process systems, tanks and piping. They apply solvents in various ways—such as filling, jetting, cascading. Dowell furnishes all the necessary chemicals, trained personnel, pumping and control equipment.

For specific information on how chemical cleaning can help you to greater profits, call the Dowell office near you. Or write Dowell Incorporated, Tulsa 1, Oklahoma.

have Dowell clean it chemically DOWELL

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Another new development using

B.F.Goodrich Chemical *raw materials*

"Rubberized" papers have a hundred new uses

DURABLE children's books or mechanics' instruction books . . . bouquets of flowers . . . protective covers for precision parts . . . binding tapes . . . artificial leather products. These are just a few of the unusual uses for Hycar-treated papers made by Endura Corporation of Quakertown, Pa.

Paper saturated with Hycar nitrile rubber latex is in effect a continuous film of rubber suspended in paper fiber. As a result these papers have unusual stretch—as much as 30%. They are far stronger and tougher than untreated papers—resist tearing and delamination. They are resistant to water, oil, and solvents, able to stand abrasion and wear.

Hycar latex can be used to change paper's physical properties . . . or to provide better coatings for printing and packaging papers. For information write Dept. HQ-8, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

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Get your Slitter-Rewinder Horsepower and Web Length Calculator and new Catalog 21-DM. Write to the Dilts Division, Fulton, N.Y.

You get top quality production – peak performance thru a combination surface and center wind. Synchronized dual hydraulic drives to rewind shafts give you optimum winding tension. Main drive is variable speed.

You get maximum control. Complete control of winding on each shaft. Pneumatic control of winding roll pressure and center wind torque. Score or shear cut slitters pneumatically positioned. Gauges allow duplication of quality slit and wound rolls.

Controls and gauges for each operating function — all conveniently grouped and located in panel at front of machine for easy operation.

Low Installation Cost – Minimum Maintenance. All drive and control components are base mounted, as integral part of machine, wired, piped and pre-tested. Standard, readily available commercial parts and drives are used. All parts readily accessible for maintenance.

Versatility. Designed for off-caliper webs, glassine, waxed papers, tissues, board, cloth, plastics and foil. Speeds up to 1500 fpm. 36" rewind capacity. Standard trim widths of 42", 52", 62", 72", 82" or 92".

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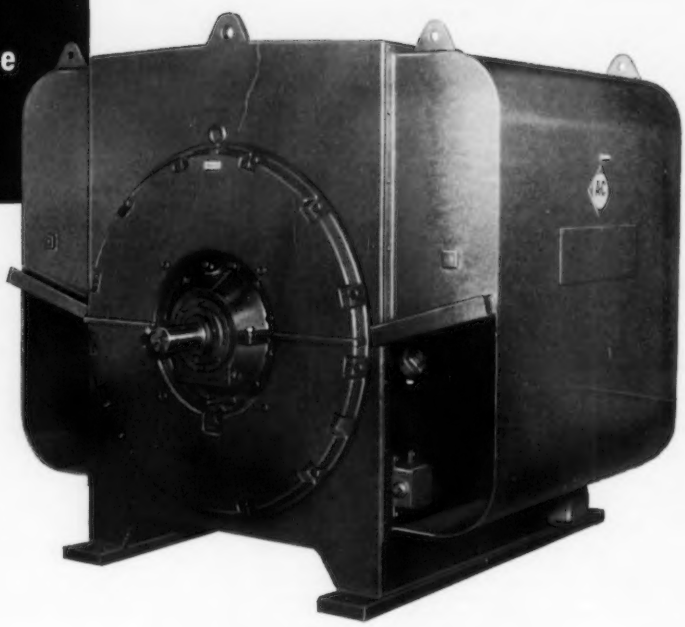
Eliminate costly enclosures with Allis-Chalmers weather-protected MOTORS

Modern features cut operating, maintenance expense . . . give MORE dependability



Here's a newly designed line of Allis-Chalmers weather-protected motors with the ability to "take" outdoor conditions. This means no expensive protective enclosures are needed . . . a big saving in plant or installation building costs.

Designed to meet defined NEMA requirements, these motors incorporate many important features which assure dependable outdoor operation:

- **Ventilating System** — Low velocity intake, vertical lift, change of direction and high velocity discharge of ventilating air keep rain, snow, sleet, dust and dirt out of vital parts.
- **Removable Air Ducts** — To facilitate inspection and maintenance of interior air passages, air intake ducts are designed for quick removal.
- **Stator Assembly** — Removable as a unit, it simplifies maintenance and minimizes downtime.
- **Split Sleeve Bearings** — Capsulized design permits access to motor interior without disturbing the bearings or their enclosures. Positive vapor seal is used on high-speed motors. Antifriction bearings are available for slow speed motors.
- **Proven Insulation** — Famous Allis-Chalmers insulation systems (Class A and B) are available. And, for extreme temperatures, or where high resistancé to abrasion and moisture is required, Allis-Chalmers can provide the revolutionary *Silco-Flex* system.

Silco-Flex is an Allis-Chalmers trademark.

THIS DESIGN available in ratings from 250 to 900 hp. Other designs in larger horsepower ratings are also available. Contact your A-C sales office or write Allis-Chalmers, General Products Division, Milwaukee 1, Wisconsin. Ask for Bulletins 51B8606A and 05B7894.

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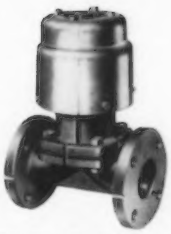
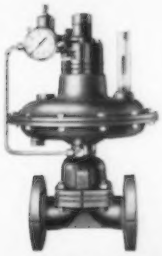
Barber-Coleman



Bendix-Westinghouse Rotochamber

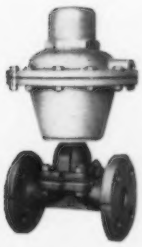


Conoflow

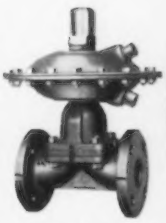
Fisher Governor

Foxboro Reversible Stabiflo

General Controls Hydramotor



Grinnell Air Motor, Spring Loaded



Grinnell Air Motor, Double-Acting

GRINNELL-SAUNDERS DIAPHRAGM VALVES

with famous name POWER OPERATORS

Grinnell Piston

Hammel-Dahl Close-Coupled

Hammel-Dahl Preloaded

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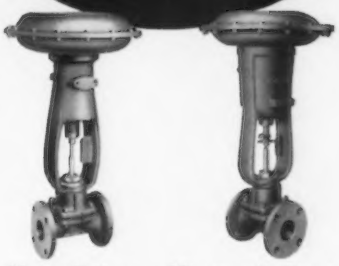

Mason-Neilan

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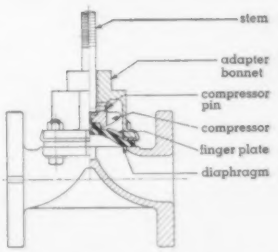
Taylor Motosteel

GRINNELL-SAUNDERS Diaphragm Valves are easily equipped for power operation — by combining any of numerous power operators, a sliding stem bonnet assembly, and a valve body. The sliding stem bonnet can be modified to accommodate any make of power operator, pneumatic or electric.

Grinnell-Saunders Diaphragm Valves are unsurpassed for handling materials as diversified as corrosive fluids, gases, beverages, foods . . . in lines where corrosion, abrasion, contamination, clogging, leakage and maintenance are costly factors.

The operating principal of the Grinnell-Saunders Diaphragm Valve is simple. The resilient, flexible diaphragm is lifted high when the compressor is raised and pressed tight against the body weir when the compressor is lowered.

Grinnell valves are available with body, lining, and diaphragm materials to meet different service conditions. For further information, write Grinnell Company, Inc., 240 West Exchange St., Providence, R. I.



This sliding stem bonnet is specially designed for power operation. The power operator is attached to the adapter bonnet and to the threaded end of its free-sliding stem. Thus, the operating force is applied *directly*. The stem, in turn, is directly connected to the compressor which opens and closes the valve when power is applied. This sliding stem bonnet is interchangeable with other bonnet designs.

GRINNELL

WHENEVER PIPING IS INVOLVED

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
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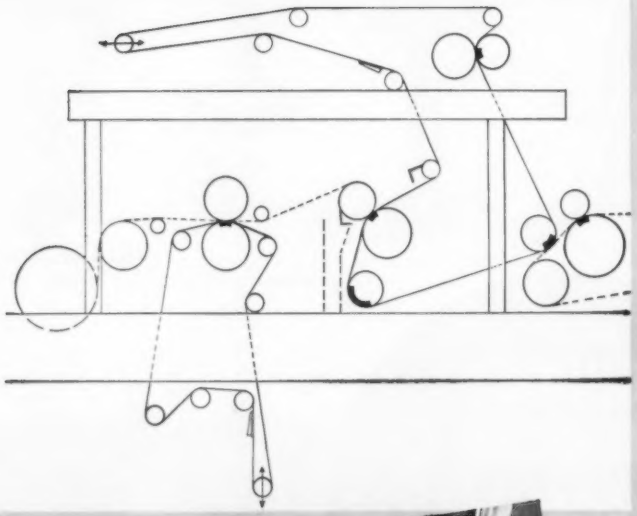
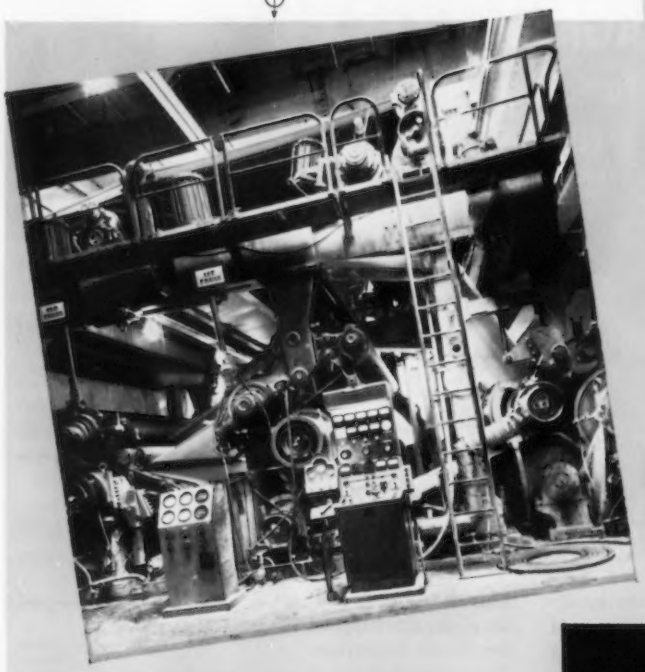


Fraser adds
Vacuum Pick-Up. Gets

MORE PRODUCTION, FASTER SPEEDS

with Puseyjones Machine



Production increases of 15% to 20%! Speeds approaching 1600 f.p.m.! These are the profit-building benefits now being achieved by Fraser Paper, Ltd., with a new Vacuum Pick-Up installed on their most recent Puseyjones Machine.

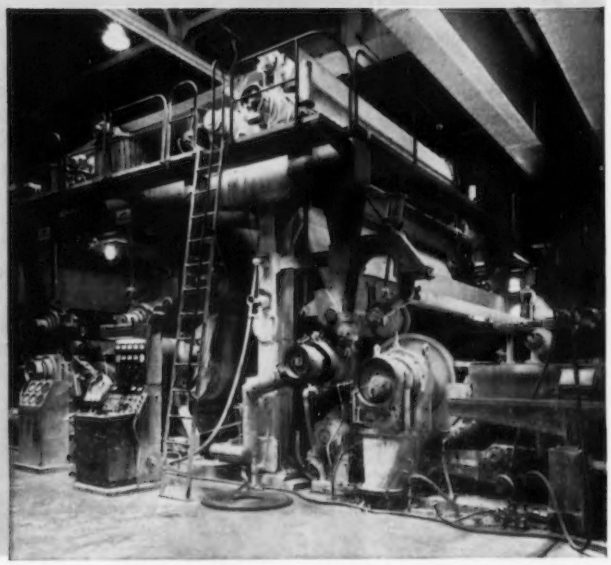
What's more, production and speeds are so satisfactory that Vacuum Pick-Ups will soon be installed by Puseyjones on Fraser's No. 1 Bond and No. 5 Catalog Machines.

Does your production need a "pick-up"? Then talk it over with Puseyjones Engineers. Call or write us today.

THE PUSEY AND JONES CORPORATION
Established 1848 : : Builders of Paper-Making Machinery
Fabricators & Welders of all classes of Steel and Alloy Products
Wilmington 99, Delaware, U.S.A.

SIMPLIFIED PICK-UP ARRANGEMENT

Built in late 1954, this 196" Puseyjones Fourdrinier replaced a 26-year-old Machine, also by Puseyjones. As the No. 4 Machine at Fraser Paper, Ltd., Madawaska, Maine, it was designed and constructed to operate at speeds up to 2,000 f.p.m., and space was provided for later addition of a Puseyjones Vacuum Pick-Up, as shown above. Machine manufactures waxing papers and similar grades.



THE SIGN OF TRADE MARK SUPERIOR QUALITY

Industrial Output Holds the Line

The Federal Reserve Board Index of Industrial Production for June stood at 143 (1947-49=100), unchanged from April and May. This was above the figure for June 1956, but below the record set last December.

Pulp Imports Drop Exports Rise

Semi-bleached kraft (+33%) and unbleached kraft pulps (+13%) were the only imported grades to show an increase for the first five months as compared with same period in 1956. Dissolving pulps showed greatest drop, off 33%, and bleached kraft the least, off 1%. Total imports of woodpulp declined 2%. Exports of pulp showed an increase of 16% over January-May of last year. The increases varied from 43% for bleached sulphite to 8% for unbleached kraft and dissolving pulps. Soda which is exported in very small quantities (a few hundred tons a month) was the only grade to show a decline.

Growth and Change Continue

The pattern of change and growth in our industry is typified by the news stories of the mills in this issue. Prominent among these announcements are: a new market pulp mill; a new bleached kraft and board mill; acquisition of one paper company by another; a new newsprint machine; start-up of a new board mill; start-up of an idle mill; purchase of an idle mill; start-up of a new 300 ton kraft bleach plant; and acquisition of three converting plants by a mill.

Price Index Shows Very Small Increase

The U. S. Dept. of Commerce price index for pulp, paper, and allied products for June was 1.3% above the index for June 1956. This index for our industry stands at 129 based on a 1947-49 base of 100. Indices for individual grades and products showed no change from May to June of this year.

Strikes Continue And Add

The strike at the KVP mill in Kalamazoo, reported in this issue, brings the number of our companies out on strike to four. Neither side seems to be in a hurry to terminate them.

Waste Paper Market Strengthens

There were signs of the strengthening in the New York waste paper market this week when the price of old corrugated moved up three dollars a ton. This price increase has been long anticipated since the price of this grade rose in other areas some time ago.

Skunks and Glassine

How does a newspaper story about a skunk biting a boy in Connecticut end up as a feature article in *Paper Trade Journal*? Turn to page 27 and "read all about it".

If it's made with TITANOX*
it's worth looking into

Paperboard products really show their colors when TITANOX titanium dioxide white pigments perk up the package. For heightened point-of-sales response, for greater product identification . . . there's nothing like the whitening, brightening and opacifying power of these TiO_2 products.

There's a line of TITANOX pigments for paper-making processes. Count on them to simplify your problems in white pigmentation, or consult our Technical Service Department for assistance. Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y. Offices in principal cities.

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

*TITANOX is a registered trade mark for the full line of titanium pigments offered by Titanium Pigment Corporation.

5212

BRIEFS for buyers of

Caustic Soda
Sodium Chlorate

Some tips on supply logistics

Like all Hooker plants, this one in Montague, Michigan, is near deep water for a purpose—a purpose you might consider when choosing a supplier.

The water gives our customers the option of barge as well as rail delivery.

For many, the barge service means cheaper delivery. For others, it offers an alternative means of shipment in case of interruption in rail service.

Here are three other "pluses" to consider when you select a chlorine-caustic supplier. (As a Hooker customer, you enjoy all of them):

1. Competent engineering help. An experienced supplier can give you assistance in designing or revamping your chlorine or caustic soda handling system.

2. Operating assistance. Your supplier's technical servicemen can often spot—and help you correct—operating troubles before they become serious. Do you get the advantage of periodic technical service visits?

3. Safety programs. Your supplier should be able to give you up-to-date advice on safe equipment and handling methods.

We'll be glad to enlarge on these points, with your requirements in mind. Simply phone or write the nearest Hooker sales office.

Chlorine dioxide bleaching

Are you taking advantage of the high brightness—high paper strength you get with chlorine dioxide?

If so, you'll be interested in what we are doing to insure good supply of *sodium chlorate*—the chemical "raw material" you need for this fast-growing new bleaching method.

Thanks to our Oldbury Products plants at Niagara Falls, N. Y., and Columbus, Miss., we're currently the nation's largest producer of sodium chlorate. But even that isn't good enough to meet *tomorrow's* needs.

The Columbus plant has been in production since 1954. Last summer we upped its capacity by 5,000 tons/yr. Now we're building again. By early 1958, another 5,000 tons/yr. will be on tap.

All this is by way of backdrop to four points you'll do well to consider when deciding where *you'll* go for sodium chlorate. Your purchase of Oldbury® sodium chlorate gives you:

1. Fastest service you can get in East and South, from our two plants.
2. Skilled technical help when you need it, *regardless of the process you use.*
3. Sodium chlorate that's of 99% minimum purity.
4. Over 50 years' experience in serving —and growing with—the pulp and paper industry.

May we spell out for you how this kind of service helps insure successful chlorine dioxide bleaching? For details, just write *Hooker Electrochemical Company, Oldbury Products, 19 Rector Street, New York 6, N. Y.*

New booklet, pocket size, offers useful facts on buying caustic soda.

Besides information on forms, grades, and shipping containers, contents include a factual discussion on 50% *vs.* 73% liquid caustic, and a handy nomograph to help you figure which strength is your better buy.

There's also a nomograph to help you estimate your requirements for various process solutions.

Check the coupon for a copy.

Check items you'd like to receive:

- ☐ *Caustic Soda Buyer's Guide* booklet
- ☐ Technical data on caustic soda
- ☐ Technical data on sodium chlorate

For information on these other Hooker chemicals used in the pulp and paper industry, check below:

- ☐ Muriatic Acid
- ☐ Sodium Sulfide
- ☐ Sodium Sulfhydrate

Clip and mail to us with your name, title, company address.

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HOOKER ELECTROCHEMICAL COMPANY

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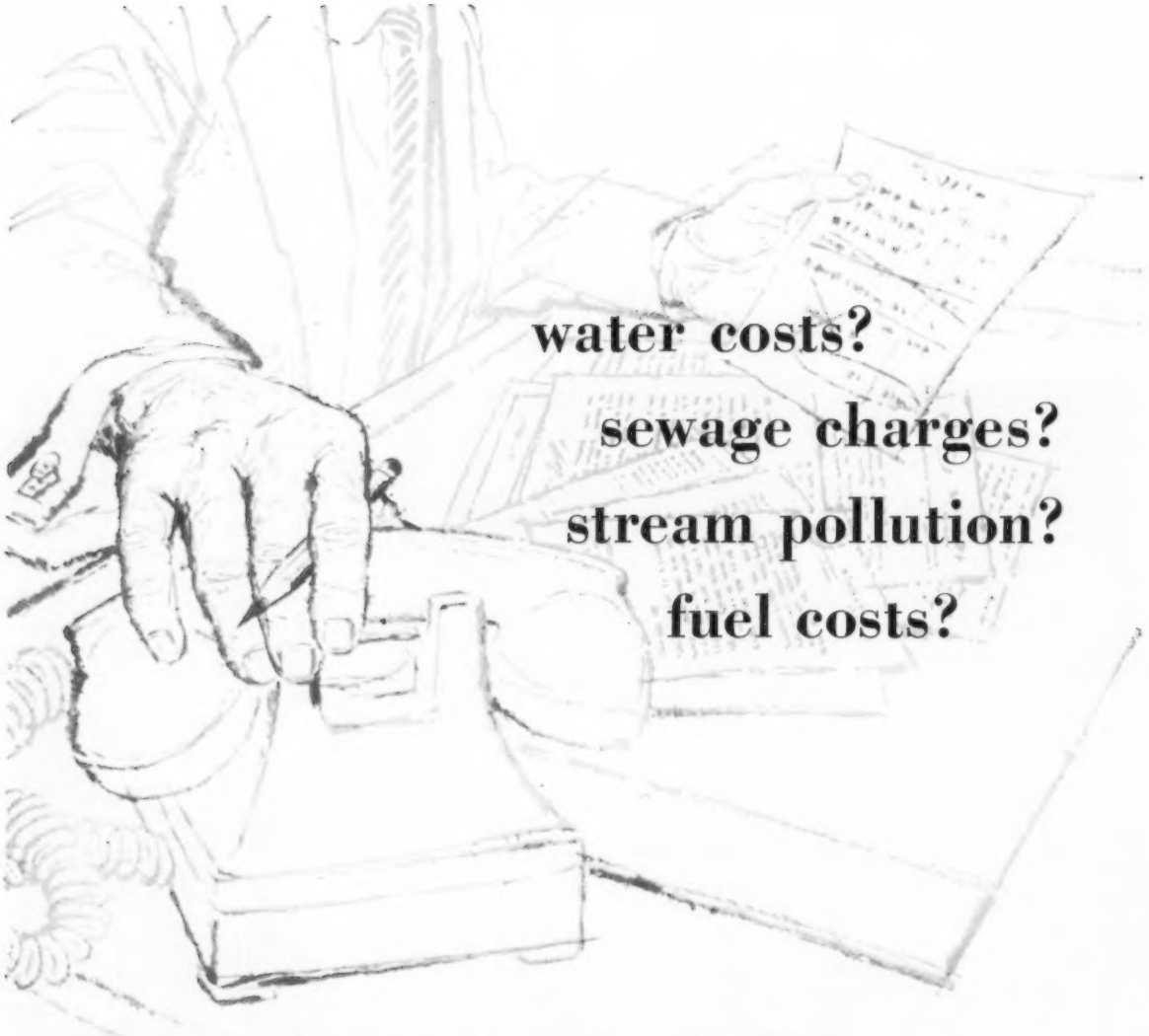


water costs?
sewage charges?
stream pollution?
fuel costs?

Dicalite can help you answer these problems

While no mill has all these problems, all mills have one or more. And one single answer—Dicalite filtration of white water—can help on all of them. Dicalite-filtered white water is so clear that it is sometimes superior to the original fresh water, and may be recycled in a partial or entirely closed system. Not only does this save on water costs and/or sewage charges, but it makes a definite saving in fuel, since the filtered white water usually re-enters the system around 130° F., or even higher.

If disposal is the problem, Dicalite filtration of white water is so "sharp" that the filter effluent is brilliantly clear, and may be discharged to waste without violating the stream pollution laws of any state.

In either case, you come up with still another saving—practically 100% recovery of furnish components such as fine fibers, fillers and filteraids, which can go right back to the beater.

From any angle, Dicalite filtration of white water makes good dollars and cents. For further information, write

Dependable GLC GREAT LAKES Dicalite® DIATOMACEOUS MATERIALS

dicalite division, *great lakes carbon corporation*
612 south flower st., los angeles, california

New Pulp Mill for Nova Scotia

The Nova Scotia Government announces that it has signed forest management license with a newly formed company, Nova Scotia Pulp Ltd. The license covers approximately 1,200,000 acres and is for a period of not less than 50 years. The agreement calls for the new company to build a pulp mill (presumably in eastern Nova Scotia). Construction of the mill is to begin within two years, with completion called for by January 1, 1962. The announcement said that the proposed mill would produce more than 300 tons of bleached pulp per day.

The president of the new company is Karl Clausen. Mr. Clausen is also president of Stora Kopparberg Corp. of New York. The Swedish parent company, Stora Kopparbergs Aktiebolag, is reported to be associated with the company on a consulting basis and will license it to use Stora's special pulp mill processes.

Another Newsprint Machine for Donohue

Donohue Brothers Ltd. is purchasing a used paper machine with a capacity of 30,000 tons per annum. The machine, to be known as No. 3, is expected to be in operation in the company's mill at Chermont, Quebec by July 1, 1958 and will increase its newsprint capacity by 40 percent.

Since all the groundwood pulp that can be made available for it with present facilities will be needed for the operation of No. 3 machine, the company will cease to sell groundwood when the new machine starts up.

Consent has been obtained from the purchasers of the $1,370,000 of five percent first mortgage bonds series "D" and of the $1,000,000 of 5½ percent serial notes, sold last year, to use the proceeds of those securities for the new project rather than for the original purpose for which they were prescribed, the construction of a sulphite mill. This project has been deferred.

Negotiations with the Province of Quebec for more Crown timber lands were successfully concluded and company now holds cutting licenses on an additional 400 sq. miles of limits.

Crocker, Burbank to Start Up New Machine

The Crocker, Burbank & Co. Assn. of Fitchburg, Mass. expects to bring their new paper machine into production during August. It will be a 156-in. Beloit fourdrinier with dryers by Black Clawson and a rewinder by Cammeron. Stock preparation equipment was furnished by E. D. Jones and the chests and tanks were lined by Stebbins. The machine will be housed in a new building erected by the Austin Co. It will be the twin of an existing machine. The machine is expected to operate on a 100 percent special kraft furnish in the production of electric capacitor tissue.

Crocker, Burbank is also enlarging their main office building approximately 40 percent in order to create more space, but are not increasing their clerical force. This addition is being erected under the supervision of K. H. Ripmen, architects, of New York, and the construction is being done by Carroll St. Hilaire at Fitchburg.

Wolfson Buying More Brown Shares

A spokesman for Louis Wolfson confirms that he and his associates have "recently increased" holdings of Brown Co., Berlin, N. H., but denies the group owns more than one million of the New Hampshire pulp and paper concern's 2,591,076 outstanding shares.

Nekoosa-Edwards Buys Racquette River

Nekoosa-Edwards Paper Co., Inc. of Port Edwards, Wis., is reported purchasing the paper mill of Racquette River Paper Corp. at Potsdam, N. Y. The mill has three fourdriniers with a daily capacity of 90 tons and an unbleached sulphite pulp mill producing 60 tons per day.

Nekoosa is acquiring the Racquette River paper and pulp mills from Orchard Paper Co. of St. Louis, converters of paper and paperboard. Orchard purchased Racquette River just two years ago.

The Wisconsin paper company has paper mill and kraft pulp mill at Nekoosa, Wis. and a paper and sulphite pulp mill at Port Edwards, Wis.

New California Board Mill Starts Operation

The new board mill of American Forest Products at Newark, Calif., began operations in mid-July. The new plant is located adjacent to the company's corrugated box plant and will produce 50 tons per day of container board.

Allied to Acquire Three Converters

Options to purchase three companies in the paper converting field have been taken by Allied Paper Corp. Arnold H. Maremout, Allied chairman declared that the acquisitions will be a step in an expansion program intended to broaden the major producer into an integrated company.

To be purchased under the option agreements are Osborn Paper Co., manufacturer of paper school supplies founded in 1892, and Mid West Paper and Envelope Co., a producer of envelopes and social stationery since 1918. Included in the purchase of Osborn Paper is its wholly-owned subsidiary, Sharon Division of Osborn Paper Co., Inc., formerly Sharon Converting Co.

Plants of Osborn and Mid West are located in Marion, Ind. Sharon in 1955 moved from San Francisco to a new Sunnyvale, Calif. plant which was doubled in capacity this year.

Shareholders of Osborn Paper and Mid West have voted to approve the sale of the companies.

Paul Van Derveer

New Editor Joins Staff

We are pleased to announce that Paul D. Van Derveer has joined the editorial staff of Paper Trade Journal. Mr. Van Derveer has a Bachelor of Science degree in wood technology from Syracuse University. He has a broad knowledge of our industry, having been employed in a paper mill and converting plant, a building products research laboratory and on technical sales and service to the pulp and paper industry.

Mr. Van Derveer spent three years in the Johns-Manville Research center at Manville, N. J., where he did research and product development work on insulating board, asbestos paper and board and roofing paper. This involved following new products from the laboratory through pilot plant operations to full scale mill production. He did product development and mill service work at Latex Fibre Industries, Beaver Falls, N. Y. There he was concerned with both papermaking and converting operations.

More recently he has been engaged in technical sales and service in the pulp and paper division of Nichols Engineering & Research Corp. in New York City.

Scott Buys More B. C. Stock

Scott Paper Co. has purchased an additional 73,000 common shares of British Columbia Forest Products Ltd. under agreement to purchase one million shares at $15 each. This leaves a balance of 438,000 shares to be taken up by December 31, 1957. Now 3,004,750 common shares outstanding.

Continental Can to Build Bleached Kraft Mill

Several site options have been acquired by Continental Can for construction of a bleached kraft pulp and paperboard mill. Gen. Lucius D. Clay, chairman of Continental, has indicated that the company definitely plans to build such a mill sometime in the future, to provide a source of supply for grades now purchased. This long range project would supply the company's needs for production of frozen food cartons and baked goods cartons, and would enable the company to expand its line of bleached paperboard containers.

Romar Starts Production at Wheelwright

Romar Tissue Mills, Inc., in Wheelwright, Mass., has started operation on two of the four paper machines in the former Doeskin Corp. plant.

According to Robert Belsky, president of the firm, full production is scheduled for the fall.

The company manufactures bulk tissue paper on rolls.

Romar took over the old Doeskin property in May.

Paperboard Production Exceeding 1956

Paperboard production during the first six months of 1957 was five percent greater than during the last half of 1956.

During the January-June 1957 period, 275,300 tons of paperboard were made in an average week by the nation's paperboard mills as compared to 262,200 tons in the July-December period of 1956. Orders received during the average week this year were also up four percent over the last half of 1957, running 274,000 tons in 1957 as compared to 263,300 tons in the last half of 1956.

The greatest gains have been registered in boxboard, used for making folding cartons, set-up boxes, food cartons and other specialty paperboard products. An increase of 9.5 percent from 122,200 tons to 133,800 tons per average week has been produced this year. The table below shows production figures for the grades of boxboard.

	1956 July-Dec.	1957 Jan.-June	% Gain
Folding Boxboard	46,500 tons	51,000 tons	9.7%
Special Foodboard	23,100 tons	24,300 tons	5.2%
Set-up Boxboard & Misc. Paperboard	52,600 tons	58,500 tons	11.2%

Paper and Board Production

According to the American Paper and Pulp Association, the ratio of the United States production to mill capacity for the week ending July 13, 1957, was 72.9 percent compared with 51.0 percent, revised for the preceding week. The ratio was 88.8 percent for the corresponding week a year ago. Mills producing newsprint exclusively are not included.

The paper board production ratio for the week ending July 13, 1957 was 55 percent, compared with 54 percent for the preceding week and 70 percent for the corresponding week last year.

(Detailed statistics on page 16.)

Production of containerboard, from which corrugated and solid fibre shipping containers are made, also gained, going from 140,000 tons to141,500 tons per average week, an increase of 1.1%.

Strike at KVP

Some 1,400 paper workers struck at Vegetable Parchment Co., Kalamazoo, Mich., July 17 in a dispute about wages and fringe benefits in a new contract. A company spokesman said pickets had been posted around the plant. There were no disturbances, he said. Paul Storey, president of Local 323 of the United Papermakers and Paperworkers Union, said the strike was called after negotiations broke down early July 16. The union's contract with the firm expired on that date. Negotiations began June 15.

Fire Levels Doeskin Converting Plant

Fire leveled most of the converting plant of Doeskin Products, Inc., at Rockland near Wilmington, Del., recently causing damage estimated at $500,000.

Damage was confined to the converting plant and did not affect a larger building on the other side of the road where paper is manufactured.

The converting plant was a 320-by-60 ft., two-story concrete block structure where rolls from the paper mill were converted into finished products such as paper handkerchiefs and napkins.

H. W. Rowan, Jr., plant manager, said that the loss is at least partially covered by insurance and that the plant eventually will be rebuilt. Until then, he said, paper manufactured at Rockland will be sent to other Doeskin plants for cutting and packaging.

Mt. Tom Plant Taken Over

A new company, the Mount Tom Development Corp., has taken over operation of the Mount Tom, Mass., pulp mill that was shut down last March by Doeskin Products Inc. President of the new company is Roderick O'Donoghue, consulting engineer of New York City.

Details of the new company's intentions are not available, since plans have not been completed.

C-Z's Camas Plant Ready

Crown Zellerbach Corp.'s new $2.7 million kraft pulp bleach plant in Camas, Wash., is now in production, boosting the Camas division's output of bleached kraft pulp by 300 tons daily.

Spanish Manufacturer Seeks Capital, Know-How

U. S. investment in the form of machinery, auxiliary equipment, and technical know-how is sought by the Spanish firm, Cartonajes Bilbainos, S. A., manufacturer of corrugated and plain cardboard packing drums, containers.

The company, organized in July 1956, proposes to expand its manufacturing operations to include corrugated cardboard itself, and kraft and straw paper.

Spanish legislation authorizes foreign capital participation up to a maximum of 25 percent; however, it is understood that the expansion plans of Cartonajes Bilbainos, S. A., would afford the U. S. participant a substantial investment within this limitation.

Bolton Award Presentation

Homer Lackey, 2nd from right, product research supervisor at Crown Zellerbach's Camas, Wash. mill, receives a plaque and cash award for his prize winning essay in the 10th Annual Bolton Award contest. Left to right are Haigh M. Reiniger, vice president in charge of sales and J. Franklin Crook, sales representative for John W. Bolton & Sons, Inc., Mr. Lackey, and A. L. Bolton Jr., treasurer and general manager of the Bolton firm.

Complete WMU Coated Paper Course

The 20 people who have completed a special three-week course in the "Principles and Practice of Coated Paper Manufacture" at Western Michigan University's department of paper technology are:

Front row, left to right: Douglas Duncan, Missiquoi Corp., Sheldon Springs, Vt.; Ian Watson, American Box Board Co., Filer City, Mich.; Andrew B. O'Neill, Minerals & Chemicals Corp. of America, Menlo Park, N. J.; Linius Heming, West Virginia Pulp & Paper Co., Luke, Md.; Maurice Mahieu, Allied Paper Corp., Kalamazoo, Mich.; Raymond Janes, WMU, and John C. Phillips, Penick Ford, Ltd., Inc., Cedar Rapids, Iowa.

Second row: Kenneth Maves, Bergstrom Paper Co., Neenah, Wis.; Jerome Kronfeld, National Starch Products, Plainfield, N. J.; Nollie B. Guerrant, Jr., New York & Pennsylvania Co., Inc., Lock Haven, Pa.; Robert Meintrup, Union Starch & Refining Co., Granite City, Ill.; Joseph-Peter Leiher, U. S. Playing Card Co., Cincinnati.

Third row: Elmer R. Urig, B. F. Goodrich Chemical Co., Avon Lake, O.; Edwin F. Erickson, Northwest Paper Co., Cloquet, Minn.; Bruce O. Dickison, Arnold Hoffman & Co., Teterboro, N. J. and Kalamazoo, Mich.; Chester Deas, International Paper Co., Moss Point, Miss.; Gunar Wetterling, Hafrestroms Aktiebolag, Haverud, Sweden; Dr. A. H. Nadelman, WMU.

Fourth row: William Goen, Simpson Paper Co., Everett, Wash.; Frank O'Flaherty, Alliance Paper Mills, Georgetown, Ontario; R. W. Edwards, A. E. Staley Mfg. Co., Decatur, Ill.; Dr. Adolphus Damusis, Wyandotte Chemical Co., Wyandotte, Mich.; Dr. R. A. Diehm, WMU, and Miss Carola Trittin, WMU.

Members of the faculty were Dr. Nadelman, Dr. Diehm, Miss Trittin and Mr. Janes.

June Record Month for Newsprint Production

Production of newsprint in North America during June this year amounted to the all-time high for this month of 691,108 tons and was 1.9 per cent greater than in June, 1956. Shipments totaled 705,274 tons in June, 1957 and were 2.4 per cent above those in the corresponding month of last year. According to the Newsprint Service Bureau, output in the United States was 150,069 tons—largest June volume in history—and shipments were 156,824 tons. Canadian production amounted to the second-highest June total of 532,039 tons while shipments totaled 548,450 tons.

The record 965,416 tons turned out by United States mills through the end of June this year was 117,250 tons or 13.8 per cent greater than in the first six months of 1956 while output in Canada of 3,311,586 tons also constituted a new high and was 115,427 tons or 3.6 per cent above that in the corresponding period of last year, thus the continental increase amounted to 232,677 tons or 5.8 per cent.

North American manufacturers' stocks on June 30, 1957 aggregated 211,435 tons compared with 225,601 tons on the last day of the preceding month and 139,292 tons at the end of June, 1956. The continental total was composed of 11,858 tons and 199,577 tons held by United States and Canadian mills respectively and inventories were higher than a year ago by 5,431 tons in the former instance and by 66,712 tons in the latter.

New Rayonier Engineering Division for Southeast

Rayonier Inc. has formed a central engineering division for its southeast operations, it was announced by Russell F. Erickson, vice president of manufacturing and engineering.

The new division, to be known as Southeast Central Engineering, will serve the company's plants at Fernandina Beach, Fla. and Jesup, Ga. as well as the Southeast Timber Division.

B. W. Haskell, currently field project engineer on construction of the firm's new Jesup mill, has been promoted to chief engineer of the new division which will have headquarters in the Rayonier office building in Jesup.

Mr. Erickson said that the Northwest Central Engineering Division located at Hoquiam, Wash. would continue to provide engineering services to Rayonier mills in Hoquiam, Port Angeles and Shelton, Wash. and to the Northwest Timber Division. R. J. Kutchera is chief engineer of this latter engineering division.

MacMillan & Bloedel Enter Converting

The paper converting field has been entered by MacMillan and Bloedel Ltd. with the production of grocery bags at a new Paper Converting Division plant in Vancouver, B. C.

The bags produced in the new plant cover a range of 35 different sizes and weights of grocery and supermarket check stand bags. They are "self opening square" type of bags and range in size from the "¼ lb." up to the familiar large check stand bags.

The six automatic machines in the new plant have a rated capacity of 200 million average size bags a year. An adhesives section is being added to the plant to manufacture starch adhesives, pastes, and glues, which will be piped directly to the machines.

All paper used in the manufacture of the bags will be produced by M & B's Alberni Pulp & Paper Division, and, in addition, wrapping paper and counter rolls in both standard and butcher kraft will be handled by the Paper Converting Division.

R. T. Fearn is superintendent of the new Paper Converting Division, which is part of MacMillan & Bloedel's Pulp and Paper Department.

Figures of the Week

PAPER PRODUCTION RATIO REPORT—American Paper & Pulp Ass'n. Figures

(Production as percent of normal capacity)

COMPARATIVE WEEKLY SUMMARIES

1957	June 15 93.9	June 22 91.1	June 29 91.6	July 6 51.0r	July 13 72.9
1956	June 16 100.1	June 23 99.6	June 30 99.1	July 7 63.7	July 14 88.8

r Revised.

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1957	93.9	96.5	96.3‡	93.0‡	93.6‡	92.5‡							
1956	99.6	102.6	102.9	102.5	101.8	99.9	85.6	96.7	94.3	99.5	97.6	90.9	97.9

‡ Preliminary.

COMPARATIVE YEARLY SUMMARIES

	1950	1951	1952	1953	1954	1955	1956	1957
Year to Date	94.2	99.9	90.9	92.6	91.4	94.6	99.3	92.3
Year Average	95.8	98.0	88.6	92.3	91.6	94.9	97.9	

All of the above data is based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

Note: In the above tables all the ratios shown are on the basis of a normal 6 and 7 day capacity.

PAPERBOARD OPERATING RATIOS†

COMPARATIVE WEEKLY SUMMARIES

1957	June 15 94	July 22 93	June 29 92	July 8 54	July 13 55
1956	June 16 99	June 23 97	June 30 97	July 7 56	July 14 70

COMPARATIVE MONTHLY SUMMARIES

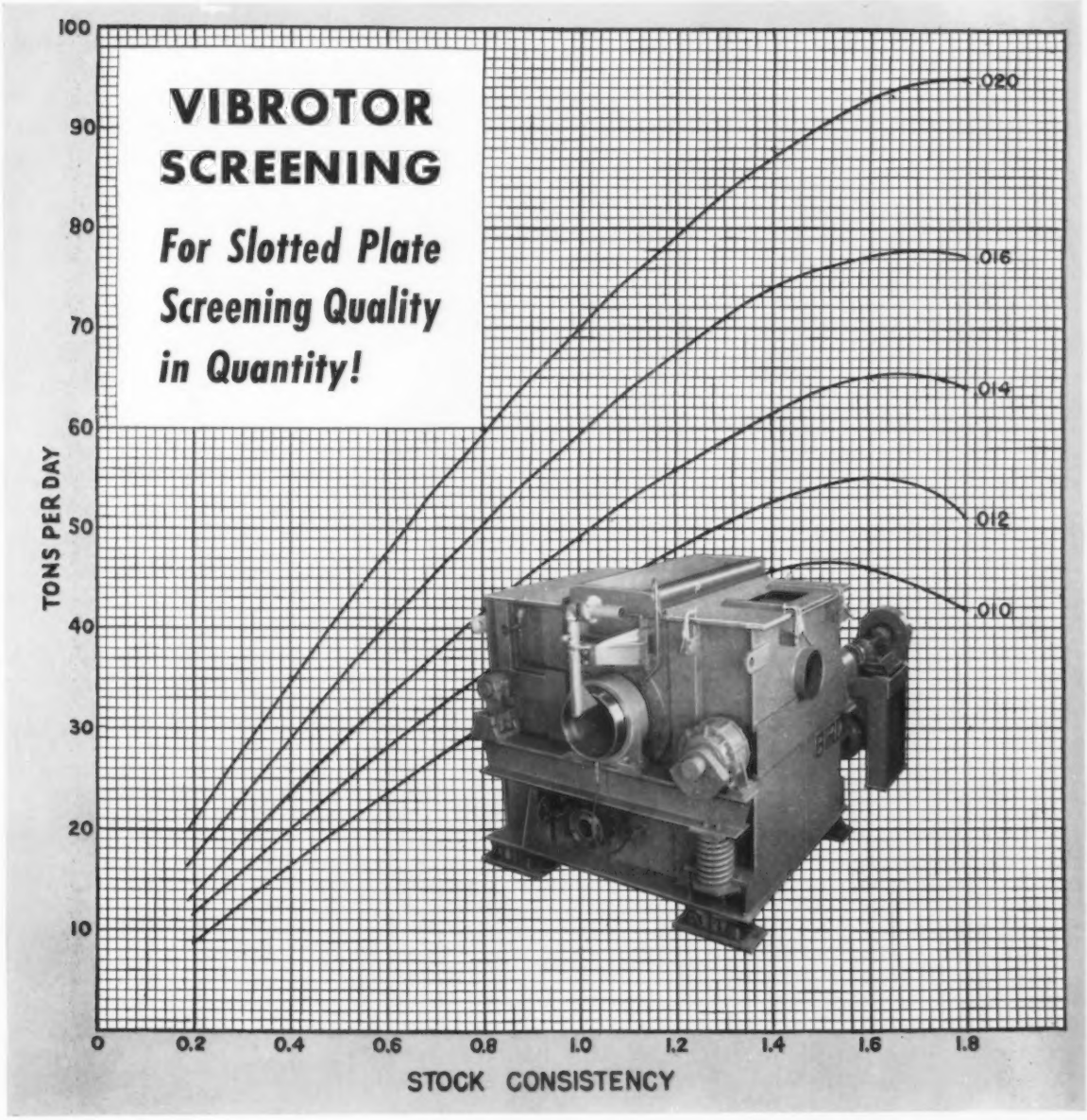
Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year Avg.
1957	91	94	94	92	93	91							
1956	100	100	99	100	99	98	77	95	89	96	93	84	94

† Percents of operation based on "Inch-Hours" reported on a 6-day basis to the National Paperboard Association.

SUMMARY OF PAPERBOARD STATISTICS—National Paperboard Ass'n. Figures

ITEM	THIS WEEK ENDING July 13, 1957	LAST WEEK ENDING July 6, 1958	CUMULATIVE TO DATE Jan. 1 to July 13, 1957
% Activity	55%	54%	90%
	Tons	*Tons*	*Tons*
Total Production	153,861	158,025	7,379,392
Liner	49,009	48,508	2,523,333
Corrugating Material	28,516	26,165	1,122,888
Chip & Filler Board	2,951	4,290	146,570
Total Containerboard	80,476	78,963	3,792,791
Folding	26,514	27,251	1,363,170
Set-Up	5,213	4,801	299,983
Special Food Board	17,015	20,573	661,602
Other	24,643	26,437	1,261,846
Total Boxboard	73,385	79,062	3,586,601
Total Orders	*Tons*	*Tons*	
Received	199,159	238,939	
Unfilled End of Week	488,517	446,373	

Includes 4th of July Holiday.



The chart shows the relationship between capacity, consistency and screen slot size for a Bird Vibrotor Screen with 40″ screen cylinder face on unbleached kraft or sulphite.

Here are average figures on other stocks screened by Bird Vibrotors: 86 tons of semi-chemical board through .018″ cut plates at 1.7% consistency; 110 tons of de-ink paper stock through 0.010″ cut plates at 2.2% consistency; 83 tons of newsprint through 0.014″ cut plates at 1.7% consistency.

Wherever you need high quality screening and lots of it, look into the Bird Vibrotor. Ask us for recommendations, layouts and estimates.

BIRD MACHINE COMPANY

SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS
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Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal

PAPER PEOPLE

Floyd D. Gottwald

Paul E. Cooper

Secretary of Albermarle Elected V.P.

Floyd D. Gottwald, Jr. was recently elected vice president of Albemarle Paper Manufacturing Co., Richmond, Va. He already was secretary of Albemarle and will continue to hold that position.

Mr. Gottwald joined Albemarle as a laboratory assistant in 1943, advanced to superintendent of the waterproof paper plant, thence to converting superintendent and later to production manager of the Richmond, Va. mills.

Chemistry Institute Adds to Staff

Dr. C. L. Garey has joined the staff of the Institute of Paper Chemistry at Appleton, Wis. as research associate. He will be engaged chiefly with the fundamental study of clays, their behavior in liquid suspension, and their use in paper coating.

Before coming to the Institute, Dr. Garey was a member of the staff at the Arkansas Agricultural Experiment Station where he investigated southern clays and was concerned with problems in soil physics. Previously he taught courses in soils at the University of Nebraska.

Fasoli Goes to Dexter

Paul A. Fasoli, a member of Sandy Hill's engineering department for the past eleven years and chief research engineer since 1954, has become associated with C. H. Dexter Paper Co. of Windsor Locks, Conn.

Accepts Sandwell Post

Paul E. Cooper, former president of Crown Zellerbach Canada Ltd., has been appointed director and executive vice president of P. R. Sandwell Co. Ltd., consulting engineers. He is a past chairman of the Executive Committee of the Canadian Pulp and Paper Assn.

Radke Resigns as Eddy Plant Manager

George G. Radke has terminated his service as plant manager of Eddy Paper Corp., Three Rivers, Mich., which recently merged with the Weyerhauser Timber Co. Merrill Thor will assume the duties of plant manager.

Mr. Radke's 41 years of service were recognized at a dinner given in his honor at the Sauganash Country Club by Chicago officials. He was presented a gold wrist watch by Anthony Haines, vice-president.

Mr. Radke has been named president of the proposed new bank in Three Rivers which will be known as the Peoples Community Bank if permission is granted by the State Financing Banking Commission.

C-Z Chemist Changes

Crown Zellerbach Corp. has transferred Frank J. Lyman, formerly chemist, technical control, St. Helens, to quality control chemist, technical control, at the same location. Leonard B. Zurcher, quality control chemist, technical control, St. Helens, is now technical assistant to the assistant paper machine superintendent at St. Helens.

Herbolzheimer Named Thilmany Production Mgr.

Fred Herbolzheimer has been appointed production manager of Thilmany Pulp and Paper Co., Kaukauna, Wis. His responsibilities include the coordination and direction of those departments engaged in production activities, including pulp, paper and converting. Planning and traffic departments will report directly to the production manager as well.

Mr. Herbolzheimer, formerly production services superintendent at Thilmany, prior to coming to Thilmany, was production manager at Marinette Paper Co.'s Marinette mill.

New V.P. for Southland

A new vice-president in charge of mill operations has been appointed for Southland Paper Mills, Inc. George I. Clarke, who has been connected with International Paper Co. at its Mobile, Ala., mill, will assume his duties at Lufkin, August 5.

Mr. Clarke succeeds the late Walter L. McHale, who had the title of vice-president and mill manager at Southland. The new executive at Southland has had wide experience in the newsprint industry. At one time he was employed by Kimberly-Clark Corp. in Wisconsin and Canada, and later was manager of the Coosa River Mill at Coosa River, Ala.

While with International he was in charge of installing, starting up and operation of the newsprint mill at Mobile, Ala.

New Power Supervisor at Brown

John A. MacLeod, a power engineer since 1941 and most recently utilities supervisor with the International Petroleum Co. in Cartagena, Columbia, has been appointed manager of the Power and Steam Division of Brown Co. Mr. MacLeod fills the vacancy caused by the death of William R. Macdonald.

A native of East Millinockett, Maine, Mr. MacLeod began his career in power work with Great Northern Paper Co. in 1933. He joined the Westinghouse Electric Corp. in 1941. He became a power engineer with Stone and Webster Engineering Corp in 1946, and from 1950 to 1953 was with the Ebasco International Corp. in New York as senior betterment engineer. Mr. MacLeod went to the West Coast in 1953 as supervising engineer with the Bechtel Corp. in San Francisco. A year ago he joined the International Petroleum Co.

How Would You Judge This Felt?

It would take an expert to set this Huyck press felt apart from any other. Actually, it broke all records at a mill running fine paper...

Life – record 47 days.

Tonnage – record 2,300 tons.

Felt Cost Per Ton – record 50% below average.

Speed – maximum throughout life.

Performance – very good throughout life.

Customer's Comment – "Huyck felts have consistently excelled".

The best way to see how Huyck's *advanced engineered* felts can pay-off in your mill is to use them.

KENWOOD TEXTILE PRODUCTS

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NEW HUYCK FELTS ★ INDUSTRIAL FABRICS

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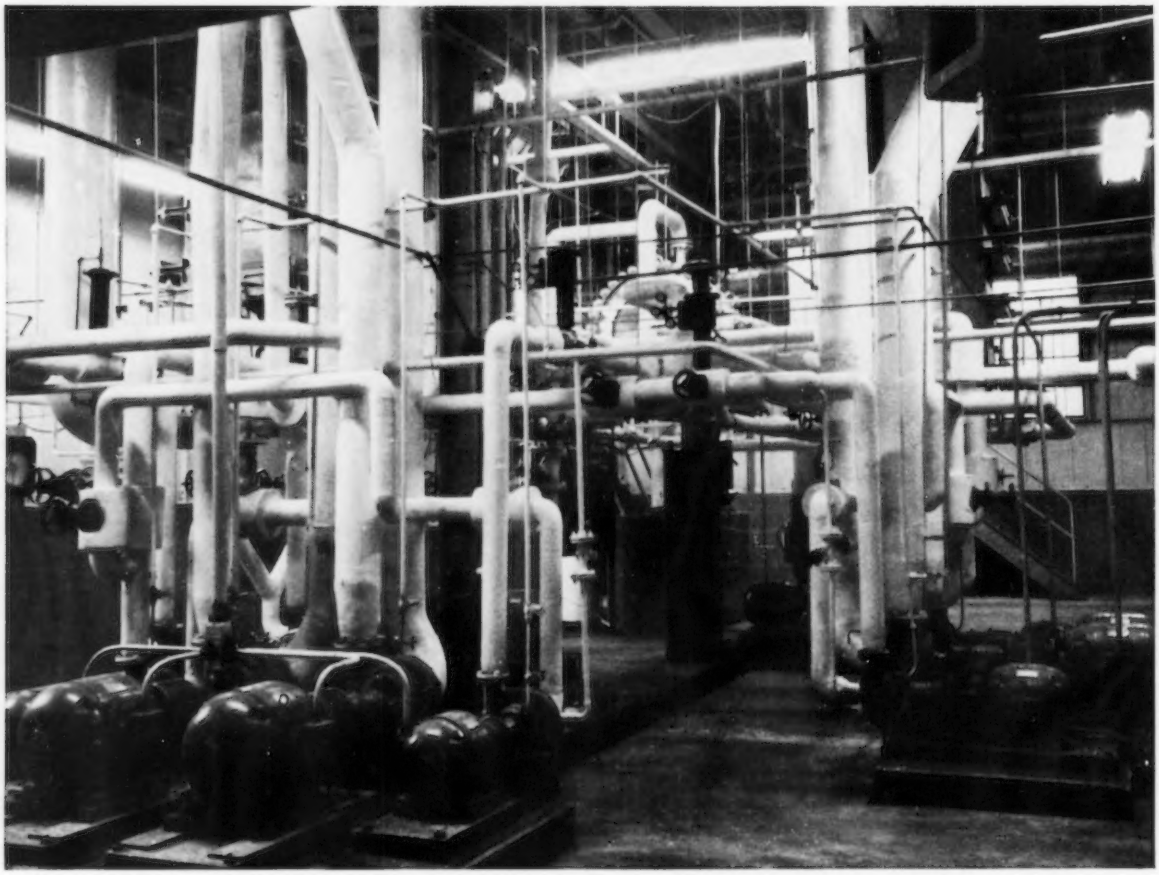

Installed four years ago at the Appleton Division plant of Consolidated Water Power and Paper Company, this large array of Type 316 L Stainless Steel piping has given trouble-free service. It connects an evaporator system for spent sulphite liquor.

Type 316 L Stainless Steel

Proves Resistance to Intergranular Corrosion at Welds in Evaporators

Four years ago, Consolidated Water Power & Paper Company installed new evaporators at its Appleton Division plant, Appleton, Wisconsin. These units evaporate spent sulphite liquor from the company's digesters, which use calcium bisulphite for cooking Mitscherlich sulphite pulp. Operating temperatures range up to 250 F.

TYPE 316 L SPECIFIED

To avoid intergranular corrosion resulting from carbide precipitation alongside welds, the company's engineers specified Type 316 L Stainless Steel for all welded piping in this system.

The company has had no failures or replacements due to wear or corrosion. They are getting the service expected from this type of stainless steel.

In standard chromium-nickel stainless steels, carbon robs the grain boundaries in areas near welds of corrosion-resisting chromium during welding operations. This is termed "carbide precipitation." The low carbon content of Armco ELC (Extra Low Carbon) Stainless Steels—.03 per cent maximum—stops harmful carbide precipitation.

For complete information on Armco ELC grades (Armco 18-8 ELC Type 304 L and Armco 18-12 Mo ELC Type 316 L), just write us at the address below. Or if you prefer, ask your equipment fabricator to contact us.

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Four Promotions At Gardner

Gardner Board and Carton Co., Middletown, Ohio has made the following new promotions: Leo Meyer has been promoted to supervisor of inspection and specifications; John Rodish has moved up to senior methods engineer; Russell Buchanan has been promoted to staff assistant to the superintendent, Middletown carton plant; and William Gregg has advanced to chemical engineer.

Mr. Meyer joined Gardner in 1929 as a laboratory clerk at Lockland, Ohio. He worked at Lockland as a beater inspector and lab technician. In 1953 he was promoted to supervisor of material standards.

Mr. Buchanan joined Gardner in 1948 as a repiler in the Middletown carton plant. From 1950 to 1952 he was preparatory stores clerk, order and layout clerk and production and scheduling clerk in the Middletown carton plant. In November, 1952 he was promoted to chief clerk. In 1956, he became a management trainee.

Students Assigned Summer Work at Sorg

Two Middletown, Ohio students at Kalamazoo, Mich., have been assigned summer training-work at the Sorg Paper Co. They are Roscoe L. Wise and William Pritchett, paper technology students at Western Michigan University. The course is designed to prepare students for work in the paper industry at technical, sales, or manufacturing levels and the summer session at the mill presents practical experience. In the course a student is required to spend two summers out of his four years in this phase of on-the-job training.

O & M Appointment

Wilfred D. Leydier has been named electric power superintendent at the Ontario-Minnesota Pulp and Paper Co.'s newsprint and at Kenora, Ont. Mr. Leydier succeeds C. R. Atcheson, who has retired after 22 years with the company.

Rindsland Promoted At M & O

William C. Rindsland has been promoted to assistant chief engineer for Minnesota and Ontario Paper Co. at International Falls, Minn. Mr. Rindsland moves up to the position formerly held by Stanley C. Stratton, who is retiring after 25 years of service with the company.

Charles E. Myers

David H. Hoover

Heads Transportation For Glatfelter

Charles E. Myers, has been named transportation manager at P. H. Glatfelter Co.'s mill, Spring Grove, Pa. His duties will include the routing, expediting, and rate-checking of all incoming and outgoing traffic, including that of the Glatfelter Pulp Wood Co. His responsibilities will also include all traffic and tariff matters pertaining to the company.

Glatfelter has also promoted David H. Hoover to shipping superintendent of the Spring Grove plant. He is a member of the company's Quarter Century Club and prior to his new appointment he has been employed in the shipping department for 27 years.

Ripco Adds To Chemistry Staff

Rhinelander Paper Co. has added John R. Greene to the staff of the plant control laboratory as a control chemist. Mr. Greene was a student majoring in pulp and paper technology at the New York State University College of Forestry, Syracuse, N. Y.

Adrien Provencher

Heads Woodlands For North-Western

North Western Pulp & Power Ltd. has appointed Adrien Provencher manager of its woodlands department. Mr. Provencher was formerly vice-president in charge of operations for Ripco Timber Co. Ltd., Hearst, Ontario. Ripco is a wholly-owned subsidiary of Rhinelander Paper Co., Rhinelander, Wis., a wholly-owned subsidiary of St. Regis Paper Co.

Mr. Provencher will be responsible for the complete management and operation of the company's woodlands. He succeeds Gordon D. McNab, who has resigned.

Dr. Arthur M. Stern

Joins W. Va. Reseach Staff

West Virginia Pulp and Paper Co. has appointed Dr. Arthur M. Stern to the staff of its Covington, Va., research center. In his new post, he will be available to each of the paper manufacturer's six mills in eastern United States for consultation and study of microbiological problems including pollution abatement and control of slime.

Dr. Stern has been assistant professor of bacteriology at Rutgers University for the past six years.

New book tells full story of stainless pipe and tubing

If you use stainless or high alloy pipe or tubing, this new illustrated handbook was written for you. It's 58 pages big – packed with informative data that you'll refer to again and again.

The table of contents is too long to list here, but it includes, for example, analysis and conversion tables, corrosion characteristics, weights, alloy properties, bending, joining and installation hints.

We can't guarantee how long the supply will last. To be sure of getting your free copy, why not clip and mail the coupon now?

CONTOUR TRENTWELD **TRENT TUBE COMPANY**

A Subsidiary of Crucible Steel Company of America
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Announcing An Important Series

On the following pages is the first of thirty odd articles which will cover all aspects of groundwood production. The author, Dr. K. H. Klemm, is a foremost authority on groundwood mill operations and has written the most comprehensive treatise ever prepared on the subject.

There are separate articles dealing extensively with: wood as a raw material, wood handling, wood storage, barking, grinding, screening, refining, bleaching, thickening, white water systems, Chemigroundwood, steamed groundwood, groundwood from chips, groundwood storage handling and end use, as well as a series on groundwood mill operation. Covered under the latter heading are: quality control, instrumentation, manpower requirements, mill organization.

Many of the chapters will be of interest to those not associated with groundwood mills, for example, those covering wood handling, barking, screening, thickening, etc.

We anticipate that there will be sufficient interest in this series to justify printing them in book form after completion of publication in Paper Trade Journal.

About the Author

Dr. Karl Heinz Klemm is one of the acknowledged authorities and leaders in the field of groundwood research. He studied at the Universities of Karlsruhe and Darmstadt from 1933-1939 and later obtained his degree of Dr. Ing. at the University of Darmstadt working with Professor W. Brecht. He was groundwood manager for the Feldmuehle group of mills prior to coming to Canada in 1954. In Canada he worked for two years as head of the Groundwood Research Group of Anglo Paper Products Co. of Quebec City during which time he produced the important paper "The Interpretation of Groundwood Production by Fibre Technology", *Pulp & Paper Magazine of Canada* 56 No. 12 178-205. In 1956 he returned to Germany as manager of München Dachauer Papier Fabriken who manufacture rotogravure printing and machine coated papers. He has many friends among technical men on this side of the Atlantic, all of whom greatly regretted the loss to North American technology sustained when he returned to Germany.

Publication of an article by Dr. Klemm entitled "New Principles for Groundwood Screening", in the January 2, 1955 issue of Paper Trade Journal, created much favorable comment.

Modern Groundwood Production

Dr. K. H. Klemm

Manager, München Dachauer Papier Fabriken, Munich, Germany

(Preparation of English text by G. P. Chinn, Control Supt., Anglo-Newfoundland Development Co., Grand Falls, Nfld.)

Introducing a major series of articles on groundwood pulp manufacture by one of the world's foremost authorities on the subject. Extra space is being allotted so that these articles may be run in addition to our regular material. If there is sufficient demand, the articles will be reprinted in book form.

A review of the literature on groundwood production and, to an even greater degree, discussions with the operators in groundwood mills show that a disturbing variety of practices and opinions, all based on experience, exist in this field. This would appear to make a description of the modern methods of groundwood production very difficult. However, the author was given an extended opportunity to thoroughly study the industrial practices of wood grinding in progressive groundwood mills of both Germany and Canada. While the primary aim of such work is always to achieve effective improvements in quality and production with the equipment available, still it is the author's opinion that really permanent gains can be based only on the exploration of the basic features involved. With this point in mind, during recent years a working concept for wood grinding, which now brings a system of order to it, was developed. This makes the survey easier.

Besides this, it is the aim of this book to fill in the gap between the last complete description of groundwood production (1) and the methods as practiced today, and to complete the technical data published by Müller (2) by giving similar figures for the equipment developed in recent years. Very useful information has been supplied by Brecht and his co-workers and the author is glad to be able to refer to this extensive work (3).

At the beginning the author wishes to express the request that the readers not be frightened by new terms and calculations which may, at first sight, seem to be too theoretical. These will be simplified as far as possible. However, the fact that up until now it was not possible to approach the basis of wood grinding at all indicates that the relationships involved are, in fact, not simple but rather complex. While it is not possible to give general rules and recommendations applicable to all mills because of their great differences, each mill can solve many of its own problems by employing the measurements and calculations suggested. From such work benefits will certainly result which would not have been possible by the application of empirical means. Efforts to become acquainted with and apply the methods and calculations described in this book will certainly pay off.

Groundwood is made by pressing wood blocks, previously debarked and cut into specified lengths, against a water-showered, revolving, cylindrical grinding stone such that the fibers are at right angles to the direction of movement and parallel to the axis of the stone. This characterizes the transverse method of grinding. Longitudinal grinding, where the wood fibers are positioned parallel to the direction of movement of the stone, has not become important to date. The friction forces and the effect of the friction heat generated lead to the defibration of the wood. The pulp produced between the wood and the stone is carried by the grooves in the pulpstone, and by the flow of the shower water, to the grinder pit. It is collected here, having a temperature and consistency depending upon the quantity of the water added, then overflows for further processing.

If fresh water is used in the grinder showers, the temperatures in the system stay low. This is known as cold grinding. If the white-water recovered from the deckers and filters used in a later stage of the process for de-watering the pulp is recirculated to the grinders, heat is accumulated throughout the whole groundwood mill system. This leads to high temperatures during the grinding process and is the modern practice of hot grinding (See Figure 1).

The mechanical pulp collected in the grinder pit represents approximately the whole solid substance of the wood delivered to the grinder. Only a very small percentage (2-5 percent depending on the species) is dissolved in the water and lost for further use. This high yield is the great advantage of mechanical over chemical pulping where the dissolving losses are usually in the range of about 50 percent and, even in the most favorable case (the semi-chemical process), from 30-40 percent. Groundwood pulp, therefore, permits the most economical use of the wood, a raw material which is becoming more and more scarce. Thus, all efforts to improve groundwood quality and enlarge its application are of great economic importance.

The pulp produced during wood grinding still contains numerous non-fiberized wood particles which must be screened out before it can be used for the production of paper. It is the task of the screening system to separate the coarse particles (splinters, fiber bundles, shims) from the fibers and finer structural elements suitable for paper production and to by-pass them to a refining system. Here they are processed until their form is suitable for the paper requirements and they are able to pass the perforations of the screens.

Finally, the accepted stock from the screens passes to the filters or deckers where sufficient de-watering takes place to permit the groundwood to be used directly for paper production, or its consistency becomes such that it can be easily stored or transported.

If wood is ground in its natural state, the pulp has a bright color and is generally called groundwood. Treatment of the wood before grinding leads to the production of either brown groundwood or Chemigroundwood. In order to produce brown groundwood, the wood has to be steamed before grinding. This results in higher pulp strengths but the fibers have a brown color, the depth of which depends upon the temperature and the length of the steaming period.

Chemigroundwood may be considered as a further improvement on brown groundwood as, by impregnating the wood with suitable chemical solutions, not only is the fiber discoloration prevented, but their properties are further improved.

Historical Survey

Mechanical pulping was invented in 1843 by the weaver F. G. Keller in Hainichen (Saxony). The invention of Keller was acquired in 1846 by H. Voelter who, together with J. M. Voith, constructed the first industrial wood grinders in the machine factory of

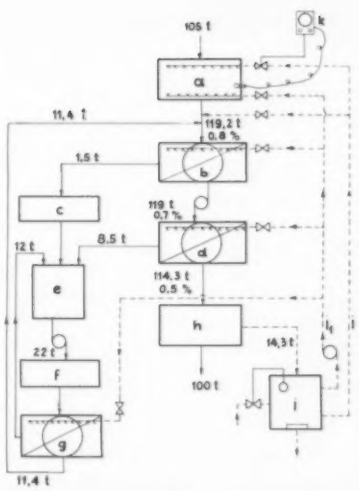

FIGURE 1 — PRINCIPLE OF GROUNDWOOD PRODUCTION
a) Grinder; b) Coarse Screens; c) Shredder; d) Fine Screens; e) Tailings Tank; f) Refiners; g) Tailings Screens; h) Deckers; i) White-Water Tank; i_1) White-Water for Showers; i_2) White-Water for Dilution; k) Grinder Pit Temperature Control.

Gebr. Decker in Bad Cannstadt, Germany. In 1852 the first wood grinder was ready for production and shown to the public at the Industrial Fair in Munich in 1854.

Groundwood production on an industrial scale started in 1856 at Kriebstein and Sandow, Germany. During the Industrial Fair in Paris in 1867, practical groundwood production was demonstrated to the public and, with this Fair, the interest in this new raw material for the manufacture of paper was developed on a world-wide scale.

In North America, independent trials were being made and in 1844 there is record of Charles Fenerty of Halifax, Canada making a paper from a pulp obtained by pressing wood against a revolving grindstone. The development of Voelter's successful grinder in Germany was followed with interest. Two such machines installed by Pagenstrecher Brothers made the first sizeable quantity of groundwood sold in North America (to the Smith Paper Co., Lee, Mass. in 1867). One of the most important early American contributions to grinder design was the practical application (about 1880) of an hydraulic cylinder to replace the pressure spindles and racks. The first two-pocket grinders produced in America were built by Olin Scott of Vermont in 1888; a third pocket was added a few years later (4).

The invention of brown groundwood was made by O. Mayh of Zwickau, Germany in 1872. Mayh, too, became associated with Voelter who developed the process for practical use. Chemi-groundwood production is related to numerous trials made at the beginning of the century. The Weishuhn process of 1920 was used commercially for a while but was discontinued because of economic reasons. The process of Libby, developed a few years ago, is the first applied on a large scale and enables the use of hardwood for mechanical pulping.

Groundwood production developed very rapidly since its invention. The first grinders of the year 1868-72 were constructed for 60-80 hp power input; today, some are operated with about 100 times this power and produce up to 75 tons of pulp per day. The most important step for increasing the use of groundwood was the application of the principle of hot grinding, developed in North America in 1888, because this led to a very marked improvement in quality. The world production of groundwood is estimated now to be about 14 million tons a year, a figure which represents about 38 percent of all fibrous materials used for paper production.

(See Bibliography on Page 24)

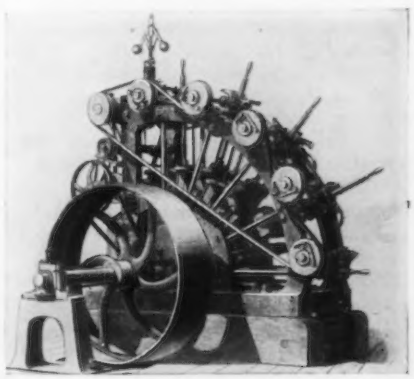

FIGURE 2 — SPINDLE GRINDER (1867)

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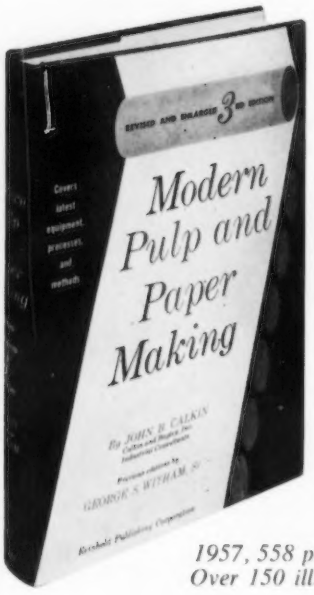
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About the Editor

JOHN B. CALKIN'S 38 years in the paper industry eminently qualify him to edit and help write this new edition. He is President of Calkin and Bayley, Inc., Industrial Consultants. He has been active in many professional organizations; is the author of numerous technical articles; and has contributed to several outstanding books.

LOCKWOOD TRADE JOURNAL CO., INC.

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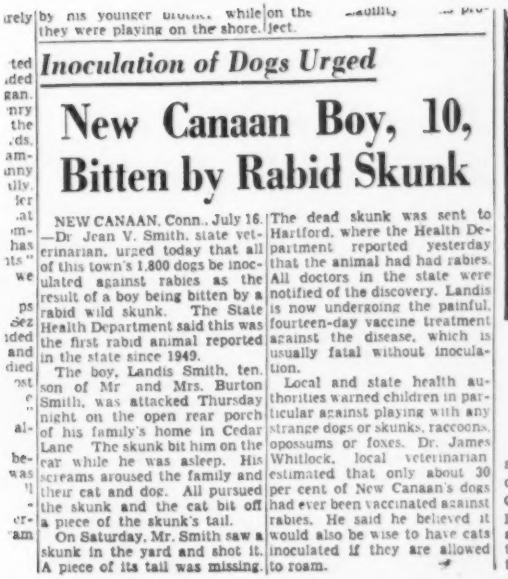
Mad Skunk Bites Boy

"T'was the night before yesterday
And all through the house
Not a creature was stirring
Not even a mouse.
Then out on the porch
He heard such a clatter
He threw open the sash
To see what was the matter
When what to his wondering eyes did appear
— — a crazy striped skunk
Chewing on his son's ear!"



...rely by his younger brother while they were playing on the shore.

...on the ...ject.

Inoculation of Dogs Urged

New Canaan Boy, 10, Bitten by Rabid Skunk

NEW CANAAN, Conn., July 16.—Dr Jean V. Smith, state veterinarian, urged today that all of this town's 1,800 dogs be inoculated against rabies as the result of a boy being bitten by a rabid wild skunk. The State Health Department said this was the first rabid animal reported in the state since 1949.

The boy, Landis Smith, ten, son of Mr and Mrs. Burton Smith, was attacked Thursday night on the open rear porch of his family's home in Cedar Lane. The skunk bit him on the ear while he was asleep. His screams aroused the family and their cat and dog. All pursued the skunk and the cat bit off a piece of the skunk's tail.

On Saturday, Mr. Smith saw a skunk in the yard and shot it. A piece of its tail was missing. The dead skunk was sent to Hartford, where the Health Department reported yesterday that the animal had had rabies. All doctors in the state were notified of the discovery. Landis is now undergoing the painful, fourteen-day vaccine treatment against the disease, which is usually fatal without inoculation.

Local and state health authorities warned children in particular against playing with any strange dogs or skunks, raccoons, opossums or foxes. Dr. James Whitlock, local veterinarian estimated that only about 30 per cent of New Canaan's dogs had ever been vaccinated against rabies. He said he believed it would also be wise to have cats inoculated if they are allowed to roam.

—From New York Herald Tribune, July 17, 1957

It was recently revealed in newspaper and radio reports that Landis Smith, age 10, had been bitten by a skunk while sleeping on the floor of an open porch at his home in New Canaan, Conn. The boy's father, Burton C. Smith, publicity director for the Glassine and Greaseproof Manufacturing Assn., parleyed the unusual events into the following report, after the boy recovered from an ordeal involving state police, two doctors, local and state health authorities and two drug manufacturers. Obviously the tale has a moral, and we suspect it concerns a particular type of packaging material:

"It was 2:30 in the morning," the boy's father said, "but the moon was bright. Suddenly I heard Lanny yell 'Help, Help!' I threw open the window, poked my head out to see what was wrong on the porch below where Lanny was sleeping, then saw a skunk waddle down the steps. My son was crying with fear and pain. I grabbed my shotgun on the way downstairs and my wife grabbed the medicine kit. I let one shot fly at the skunk and missed him. He let one fly that missed nobody. Then the skunk slunk into the darkness.

"Lanny said he thought it was the family cat, until the skunk had him by the ear. A self-respecting skunk would have given fair warning, but as it proved, this skunk had some crazy notions."

Next morning, it is reported, a search revealed pieces of the animal's tail on the lawn. The publicist had nicked it, or at least blown off a few feathers. This became important in the identification of the culprit when it was later killed by some neighborhood boys with air rifles. "Remember," said the father, "I was shooting in the dark." Mrs. Smith, in a generous mood, added that Mr. Smith was getting a reputation for doing just that. Another shot in the dark, this time luckier, came to Mr. Smith the following morning. "You'd better call the doctor, honey," he said, "the skunk might give Lanny rabies." (Lanny, age 10, thought I said 'babies' and this took another half-hour to explain.) The doctor became alarmed immediately. "Find that skunk," he shouted over the phone, "and bring that boy in this minute!"

The skunk was later annihilated and wrapped securely in some paper they "just happened to have around," reported Mr. Smith. "It was waxed laminated glassine, 20 lb. basis with 7 lbs. of wax, known everywhere as basis weight 20/20/47. Naturally the doctor was delighted," Mr. Smith insisted, "to find the perfect packaging material because it protected the freshness and aroma for required laboratory examination at state health headquarters, a hundred miles away." The doctor was unavailable for comment and his office was closed temporarily for airing.

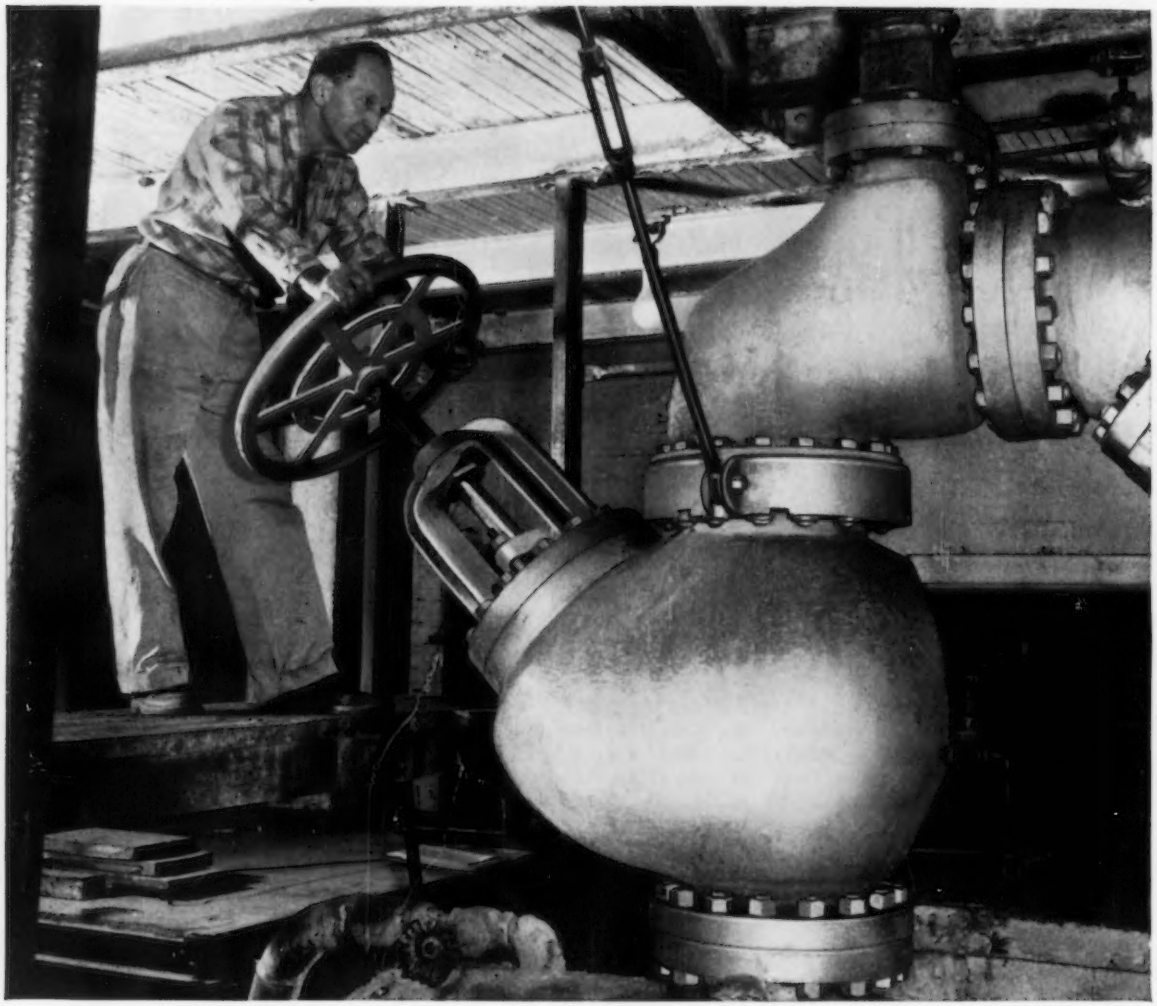
The state police, at the doctor's request, rushed the animal to the state laboratory where hydrophobia was diagnosed immediately. ("You think I'm kidding?" asked the father, "Then check with the two drug manufacturers who rushed the vaccines to our pharmacist in private cars.") In the meantime, it has been recommended that all dogs, 1800 of them in New Canaan, be given rabies vaccines.

The youngster is now doing fine, after 18 injections, some of which even made the doctor wince. But the boy is safe and the skunk out of this world. One remaining irritant is, where did the skunk get rabies? Since notices of the incident have appeared in N. Y. newspapers and on the radio, reports have flowed into the Smith family, all claiming discoveries of crazy-acting squirrels, wood chucks, and a few wild children. One lady asked if rabies shots would keep her husband from acting so crazy when he returned home from conventions!

Mr. Smith added that he was grateful to the doctors and to the Glassine and Greaseproof Manufacturers Assn. which provided the laminated glassine, basis weight 20/20/47, without which Mrs. Smith could never have delivered the dead skunk without a slight case of stomach upset. Mr. Smith, it seems, was occupied with dreams of developing a new skunk test for packaging papers, glassine, laminated, 20/20/47 lbs. basis weight, that is.

Editor's Note—There is an important discrepancy in Mr. Smith's story. He claims the skunk's tail while the Herald Tribune credits it to the cat.

Crane Valves Pay for Themselves in Trouble-Free Maintenance



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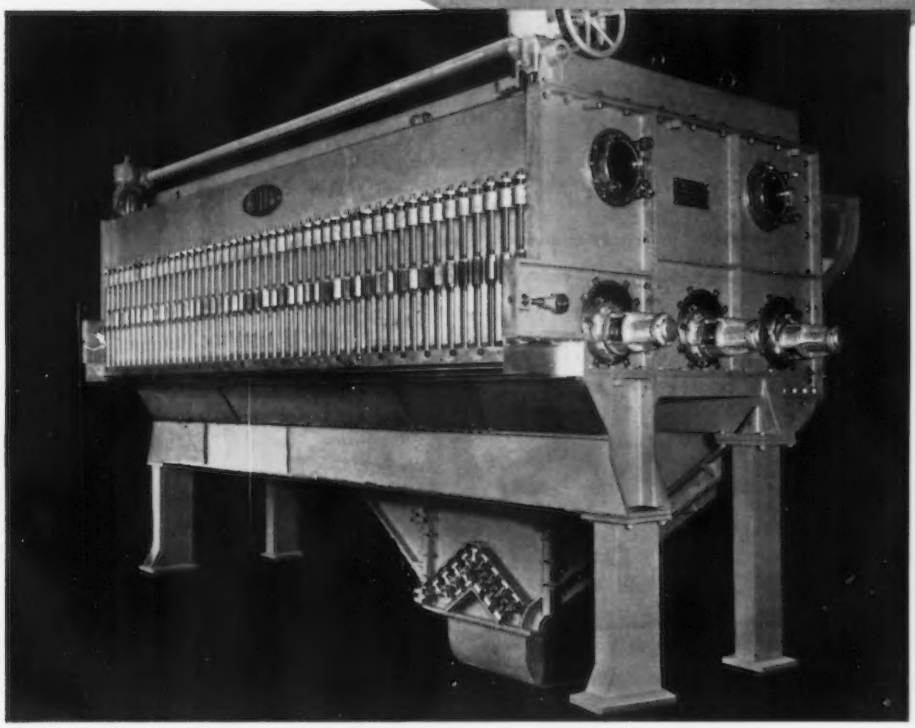

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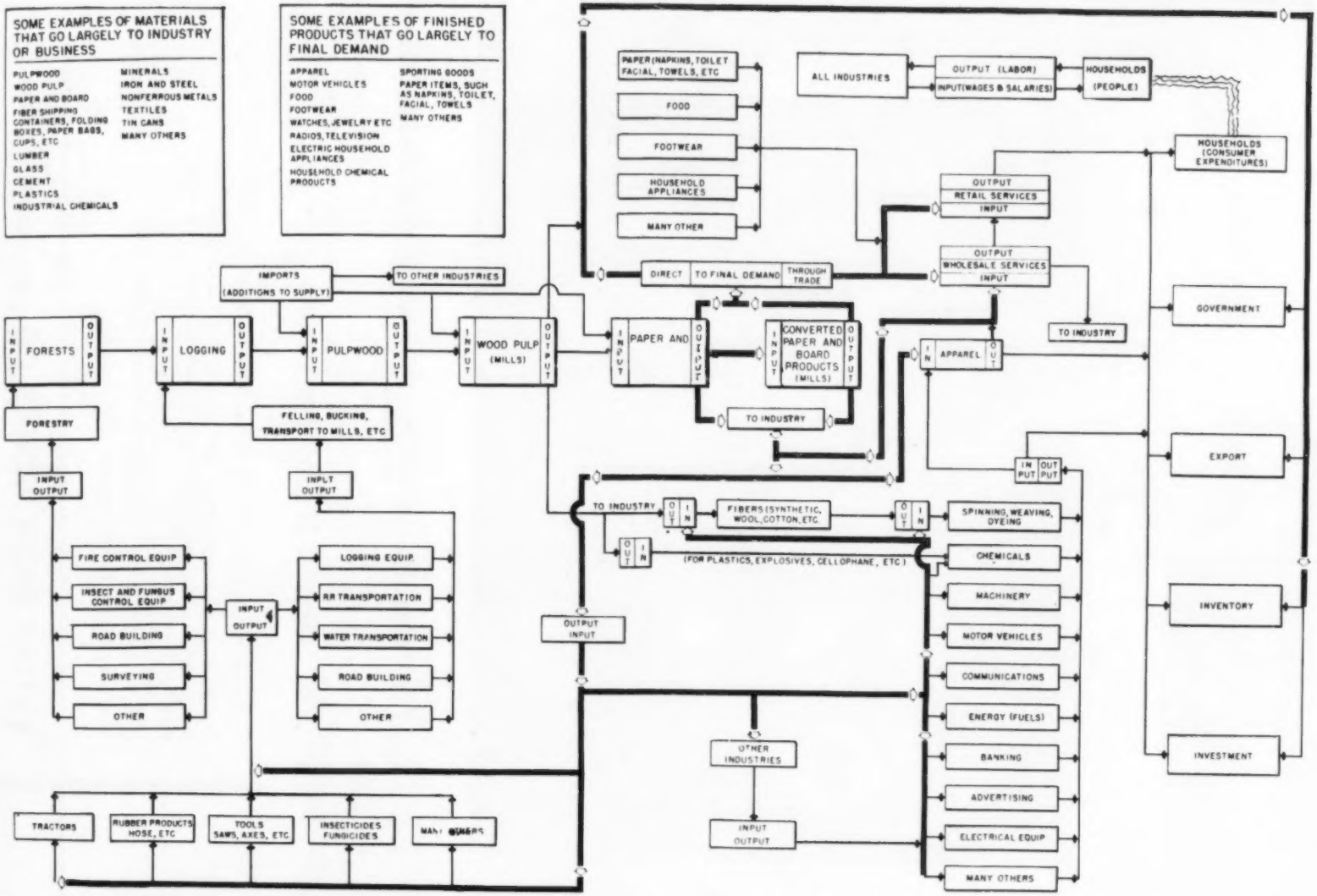

SCHEMATIC FLOW CHART OF INTERINDUSTRY RELATIONS with emphasis on the distribution of pulp, paper, board and products.

The following three articles present an objective view of current conditions in our industry.

Total Marketing—Pulp, Paper, Board, and Products

W. LeRoy Neubrech

Assistant Director for Pulp, Paper and Paperboard, Forest Products Division, U. S. Department of Commerce

Capacity expansion and its marketing problems was the subject of one of the major speeches[1] during the occasion of "Paper Week" in February 1957. "Total marketing" was referred to as the key to full utilization of the industry's production facilities and was explained as follows:

"First, the marshalling of detailed factual information on all the existing and potential markets for paper and paper products down to the ultimate consumer in each market; second, long and short-range plans of operation for the development of those markets; third, a continuing sales and marketing program backed by the organization, the facilities and the resources necessary to do the job.

"Total marketing thus involves much more concern with the ultimate consumers. We must have a clear picture of our customers' market and an intimate knowledge of the ultimate consumer who buys the final product at the other end of the distributor pipeline."

These noteworthy observations undoubtedly presented a challenge to the sales manager of almost every manufacturing company. The question would seem to be: How do we marshal the detailed information on all existing markets down to the consumer in each market? Can we ask our economists and statisticians to tell us the comparative importance of various markets down to the ultimate consumer in each market?

[1] "Today's Over-expansion and Its Marketing Problems," by G. J. Ticoulat, Senior Vice President, Crown Zellerbach Corp., Paper Trade Journal, March 4, 1957.

Five Ultimate Markets

In actuality, there are only five ultimate markets for any final-demand product. First, and the most important, is the American people (otherwise referred to as "households"); second is government (federal, state, or local); third is export; fourth is investment (including building, construction, and equipment); and fifth is sometimes inventory—a "market" when stocks are being accumulated and a "supply" to be sold when stocks are being liquidated.

These five ultimate markets indirectly are responsible for all consumption of paper and board, yet they actually directly purchase only a very small percentage of primary paper or paperboard but do account for about 15 per cent of final demand for converted products. Surely, people (households) do buy certain sanitary paper products, stationery, and other specialty paper items, but they are not important purchasers of printing papers, course papers, special industrial papers, fine papers, containerboard, boxboard, or building paper; nor are they important customers for bags, boxes, business-machine supplies, packaging accessories, etc. Government is a significant market for printing papers and office supplies but is not noteworthy as a buyer of most other grades of paper, paperboard, bags, boxes, etc. Exports take about two to three per cent of production. Investment, namely construction, accounts for a major part of the market for building paper and board.

Where Is the Market?

Where, then, is the market for most of the production of paper, paperboard, and converted products, if only a relatively small part of the total is actually purchased by the five ultimate markets? The answer is that the five major markets largely purchase final-demand products — and products which require large quantities of paper, paperboard, or converted products in their manufacture, packaging, and distribution. This subject is usually referred to as "interindustry relations," otherwise identified as "input-output" statistics. Industrial and business economists are greatly interested in planning ahead for a revised and up-to-date input-output statistical project, possibly utilizing the 1958 Survey of Manufactures data. In the meantime, the results of a previous input-output study[2] still serve a useful purpose in appraisal of product flow.

The interindustry relations study on pulp, paper, board and products which appeared in the December 1953 issue of the Forest Products Division's Industry Report was one of the first, if not the first, study to actually utilize the Bureau of Labor Statistics input-output data so as to trace through the effcets of final demand for other products on the pulp, paper, and board industry itself.

Input-output statistics as a statistical tool are relatively new. Other important

[2] Reprints of "The Distribution of Pulp, Paper, Board, and Products in the Nation's Industrial and Business Economy" (from Pulp, Paper, and Board Industry Report, December 1953) available from Office of Sales and Distribution, U. S. Department of Commerce, Washington 25, D. C. at 10 cents a copy.

statistical tools, such as the gross national product data first computed by the Government in World War II days, are likewise quite new. Yet many business executives, private economists, and Government officials have accepted the gross national product as an important measure of economic activity and apply this measure in their own particular fields of enterprise. In fact, gross national product is frequently utilized in many kinds of economic and market analyses. As in the case of GNP, there probably will be a time lag before input-output statistics are more widely utilized.

Three Levels of Activity

In attempting to appraise the economic activity of the United States, the following three levels of activity should be borne in mind:

1—The aggregate overall level;
2—The single industry such as pulp and paper; or
3—A single firm in a particular industry.

There are a number of measurement tools covering the overall national economic activity such as measured by the gross national product, the Federal Reserve index of industrial production, railroad carloadings, or major components such as the index of durable goods production or non-durable goods production. However, the three levels of analysis, namely the aggregate, a single industry, or a single firm, are all interrelated. A single company is part of a particular industry and an industry is part of the whole economy.

Looking for Correlation

One of the techniques commonly accepted for many years in market analysis or long-range planning is the traditional time-series correlation. The usual procedure is to attempt to get a "good fit" correlation for the data of a particular company, or a commodity produced by an industry, with the fundamental measures of economic activity, such as GNP, carloadings, etc. While the value of utilizing such correlation studies is not questioned, there are many occasions when a more appropriate approach to certain market analysis problems would be the utilization of the input-output statistics. This would be particularly true when a more comprehensive knowledge is required of internal relationships of industry which are obscured in GNP and other overall indexes.

Since pulp, paper, board, and products are in large measure sold to other industries, with only a small part going to final demand, input-output statistics would be particularly applicable in market analysis. This would be true of other industries and products, such as steel, chemicals, and textiles.

W. LeRoy Neubrech

Input-Output Statistics

Input-output statistics make it possible, for the first time, for the pulp, paper, board, and products industry to realistically take into account prospective changes in final-demand expenditures by people and by the Government, and also for export, thus enabling an appraisal of the effect of these changes at the manufacturing level.

The input-output statistics make possible the preparation of estimates of future market demands for the industry's products, even though very little is actually sold directly to final demand customers. On the basis of these projections, the industry would, in turn, be able to appraise the following: 1) Plant and equipment needs; 2) raw material needs; 3) fuel requirements; 4) labor needs; 5) development of distribution plans; 6) the need for new product development or qualities to meet expected future market trends; 7) adequacy of advertising and merchandising channels; and 8) other special applications.

In citing these possible applications of input-output statistics for an industry or a single firm, it should be emphasized that this is only one more important measuring device which may be used in making business judgments. However, it is not a panacea or a substitute for judgment. Industry and business experience will always remain a fundamental.

Schematic Plan Chart

There are many complicated statistical considerations which only the experts in the field of input-output can fully understand or explain. However, a more simplified understanding of this subject may be obtained by reference to the Schematic Plan Chart. Referring to the upper right-hand box in the chart "Households (People)," output for this category is labor to industry and business, and input is wages and salaries. The right-hand column of boxes on the chart represents the flow to final demand which is depicted by the following categories: Households (consumer expenditures); Government; export; inventory; and investment. The aggregate amounts flowing to these categories would be equivalent to the gross national product.

The large boxes in the upper left on the chart cite some examples of 1) finished products that go largely to final demand, such as apparel, motor vehicles, food, footwear, watches, jewelry, radios and television, electrical household appliances and others; 2) materials that go largely to industry or business, such as pulpwood, wood pulp, paper and board, fiber shipping containers, folding boxes, paper bags, lumber, glass, cement, plastics, industrial chemicals, various metals and minerals, textiles, etc.

The flow of raw forest products (i.e. forests, logging, pulpwood) from their source to the time they reach the paper and board mills is depicted in the center of the chart.

Final-demand items, such as paper napkins and paper towels, can be traced from manufacturer through trade channels to the ultimate consumer.

The chart illustrates the effects of final demand for apparel upon the pulp, paper, paperboard, and connected products industries. According to the input-output statistics, the apparel industry buys practically no primary paper and board but does buy direct from converted products manufacturers quantities of shipping containers, folding boxes, etc., aggregating about $78 million. In addition, the apparel industry also requires cloth, which is produced by the spinning, weaving, and dyeing industries; it needs chemicals and machinery, communications, fuel, banking and advertising services, and products and services of many other industries. This is all input to the apparel industry. When the apparel is produced, it becomes output of the apparel industry and flows usually to wholesaler, retailer, to the consumer; it may also flow direct to Government, export, and inventory.

Considering that the numerous suppliers of products and services to the apparel industry also require paper and paper products, the study shows an indirect flow to the apparel industry of about $85 million of primary paper and board (even though the apparel industry purchased very little direct). Also, indirect requirements of converted paper products totaled $50 million added to direct purchases of $78 million, the aggregate value of converted paper products for the apparel industry is $128 million.

From the June 1957, Pulp, Paper and Board Industry report issued July 22, 1957 by the U. S. Department of Commerce.

Economic Review of the First Three Months

Wallace H. Pederson

Program Executive for Paper Pulp, Paper and Paperboard Subdivision,
Forest Products Division, U. S. Department of Commerce

The paper and board industry is presently undergoing a period of stock-taking and adjustment preparatory to deciding its future course. For nearly two years the industry has been called upon for all-out production to meet demand. A slackening of the upward trend, which began in the latter part of 1956, has become more evident in 1957. In fact, for the first quarter of this year, United States paper and board production of 7,727,000 tons was 3.6 per cent below first quarter 1956 production but virtually at the same level as in the fourth quarter of 1956. It is believed that this lower level of production is not so much the result of a slackening in ultimate consumption of the industry's products but rather an adjustment of inventories. Stocks had become more extensive than necessary to carry on the current business at the consumer level in view of ready availability and prompt delivery schedules from mills.

Paper

Total paper production of 3,504,000 tons during the first quarter of 1957 was approximately the same as a year ago. This is accountable primarily to increased production of newsprint and machine-coated and sanitary papers, as other grades declined moderately.

Paperboard

Paperboard operations continued at lower levels during the first quarter of 1957 with production of 3,493,000 tons being 190,000 tons or 5.2 per cent below the first quarter 1956. Containerboard accounted for most of the decline. Special food board, with production the same in both quarters, was the only grade of paperboard that did not show a decline.

Building paper and board production reflected the slowness in residential construction activity by being down 13.1 per cent on a year-to-year comparison.

April 1957 preliminary production data from the Bureau of the Census shows a continuation of decelerated activity. Total paper and board production was down two per cent from April 1956.

Capacity

Both paper and paperboard capacity have increased since early 1956 and ratios of production to capacity reflect the larger margin available to cover increases in demand. According to trade association reports, the 1957 paper ratio was 95.2 through May as compared to 101.3 last year. The operating ratio for paperboard in April was 92 and in May about 95 as compared to ratios of 100 and 99 for the same months of 1956. The decline in operating ratios began in mid-1956 and has continued. A return to 1956 tonnage levels during the balance of this year would not raise operating ratios to 1956 levels because of the increased capacity.

Merchants

Reports from Department of Commerce field offices indicate that wholesale merchants and consumers have continued to reduce their inventories from the high levels maintained in 1956 and are not ordering as far ahead as was the pattern previously. Present orders on paper and board mills are mainly for current demand. Paper mills are again offering better deliveries both as to time and amounts, so that merchants and consumers need not carry as large inventories as during a period of uncertain supply and delivery. The current situation reflects an acceptance by these merchants and consumers that this service by paper mills is advantageous and may obviate the 30-to 45-day inventory long considered necessary for day-to-day operations. The growing tendency in both retail and wholesale establishments of all types to depend on prompt deliveries from their suppliers indicates that this trend toward lower inventories is not confined to the paper trade.

Newsprint

Newsprint consumption of 1,647,000 tons during the first quarter of 1957, after two years of sharp increases, showed a 1.6 per cent decline from the first quarter of 1956. According to trade association data covering the first five months, 1957 newsprint consumption was still running slightly below 1956 levels. Meanwhile publishers' inventories at the end of May 1957, according to the American Newspaper Publishers Assn., represented 55 days' supply as compared to 37 days at the end of May 1956. Tonnage-wise, the trade association data shows an inventory increase of 53.5 per cent or nearly 240,000 tons.

United States production of newsprint, continuing the upward trend that has been evident since 1954, reached 465,000 tons in the first three months this year, nearly 19 per cent above the first quarter of 1956. Preliminary Census data for April show a 25 per cent rise over April 1956.

For the first quarter of 1957, total imports of newsprint were down 2.1 per cent below the first quarter 1956, with imports from Canada down 1.5 per cent, or 19,000 tons. The adequacy of North American supplies of newsprint is shown by the decline in U. S. imports from overseas countries other than Finland, which is a traditional stable supplier. Only 5,000 tons of newsprint were imported into the United States during the first quarter of 1957 from overseas countries other than Finland as compared to 29,000 tons in the fourth quarter of 1956. Imports from Austria dropped from 11,900 tons to 2,900; from Japan the decline was from 2,300 tons to only 165; and West Germany, which exported nearly 2,700 tons of newsprint to the United States in the fourth quarter of 1956, did not ship any in the first quarter of this year.

Exports of newsprint from the United

States during the first quarter of 1957 amounted to 53,000 tons, a rise of 13,000 tons from the previous quarter and 17,000 tons or about 49 per cent above exports in the first quarter of 1956. Latin America and the Philippines continued to take the major tonnage with Europe accounting for 7,200 tons, up 3,000 tons from the fourth quarter.

Woodpulp

Wood pulp production during the first three months of this year at 5,508,000 tons reflected the decline in paper and board production. Wood pulp output was down 1.9 per cent or nearly 100,000 tons below last year's first-quarter production. Imports declined 5.2 per cent while exports were up 19 per cent or 36,000 tons. Consumption of wood pulp by paper and board mills was 5,722,000 tons in the first quarter of 1957, a 1.3 per cent drop from a year ago, while non-paper consumption was up 7.2 per cent. Inventories of wood pulp at paper and board mills as of March 31, 1957, were nearly 12 per cent above the previous year's levels, while wood pulp stocks at pulp mills showed a 22 per cent rise in the same period.

The usage of waste paper in the first quarter followed the paperboard production decline, being nine per cent below the same period of last year.

Pulpwood

Pulpwood activity followed pulp production patterns generally but with less marked changes. Consumption of pulpwood was down only 0.3 per cent in the first quarter 1957 as compared with the first quarter 1956. Inventories of pulpwood rose more than 1.5 million cords, or 30 per cent during the same period and as of the end of March 1957 were at the highest level ever recorded, 6,765,000 cords. However, based on first quarter consumption, pulpwood stocks amounted to about 49 days' supply.

From the June 1957 Pulp, Paper and Board Industry report issued July 22 by the U. S. Department of Commerce.

Converted Paper and Board Products Trends

John R. Mutzabaugh

Industry Analyst, Pulp, Paper and Paperboard Subdivision,
Forest Products Division, U. S. Department of Commerce

Upward trends in business activity by the principal outlets for converted paper products may enable converting, largest of the related paper industries, to increase sales for the current year above those of 1956.

Largest consumer of converted paper products outside the manufacturing area is the retail trade. Estimates for the current year point to an increase of four per cent in retail dollar sales over 1956.[1] For the four month period through April, retail sales increased by five per cent over the same period last year. Shipments of converted paper products to retailers account for eleven per cent of total converting sales.

Any attempt to estimate market volume for converted products from sales reports should include a consideration of price changes. For the 1957 period covered here, consumer prices of all items increased four per cent.

Wholesale trade experienced continued good business through the first four months of the current year and registered an increase of four per cent in sales over the same period last year. Wholesale trade accounts for eight per cent of converted products output. Expectations by wholesalers for the current year are for an increase of three per cent in sales over 1956.

[1] Business Sales Anticipation, Survey of Current Business, March 1957.

Converters of paper and paperboard products ship the major portion of their production to other manufacturing industries, a group market that anticipates a dollar-sales increase of 8 per cent for 1957 over 1956. Total manufacturing dollar sales through April of the current year were up 6 per cent over the same period last year, while volume production was up 2 per cent. Total manufacturing consumes 58 per cent of paper and board converting production.

Producers of nondurable goods attained a dollar-sales increase of six per cent for the January-April period over the same period last year and a physical volume production increase of one per cent. Shipments to nondurable manufacturers account for 49 per cent of converting sales. For 1957 this group is looking forward to a sales increase of six per cent over last year.

Optimism for the current year runs highest for the durable goods manufacturing group, supported mainly by estimates from producers of aircraft and automotive equipment. For the period through April of this year over the same period last year durable sales increased seven per cent and production two per cent. This group accounts for nine per cent of paper converting shipments. This year durable goods producers expect to increase sales over 1956 by nine per cent.

Markets for converted paper products for which no predictions for 1957 are available, but which showed increased business activity for the first quarter of the current year over the same period last year, include federal and local governments, with increased purchases of eight percent, and household operation, for which personal consumption expenditures increased five percent.

While general business conditions were leveling off, service industries showed marked improvement during 1956 and continued their upward trend through the first quarter of the current year with an increase of seven percent over the same period last year.

Capital Expenditures

Expenditures of $16.4 billion in 1957 proposed for new plants and equipment by total manufacturing will mean more to converters after construction is completed and new plants are in operation. Total manufacturing accounts for over half of the converted products output while construction and equipment comprise only two percent of the market. For the first quarter of the current year expenditures for new plants and equipment in the manufacturing area were $3.9 billion.

From the June 1957, Pulp, Paper and Board Industry report issued July 22 by the U. S. Department of Commerce.

STARTUP — Albany's Service Engineers work with machine builders and mill personnel on new machine planning and startup to assure minimum of felt problems. Above: Glatfelter's paper mill superintendent Jack Miller, J. E. Sirrine Co's A. M. Perdue, gen. supt. George H. Glatfelter, and Albany's Chief Service Engineer Larry Woodside discuss startup problems of new Glatfelter suction-transfer machine.

OPERATION — Albany Service Engineers analyze machine conditions to help improve felt performance. Above, Larry Woodside checks felt measurement between presses. TROUBLE SHOOTING — Below, Walt Willetts, typical of Albany's Service Engineers, travels nearly 75,000 miles each year to provide on-the-spot service.

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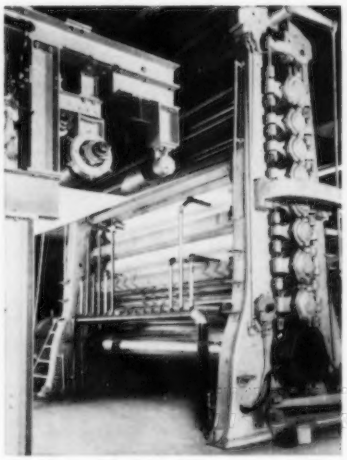
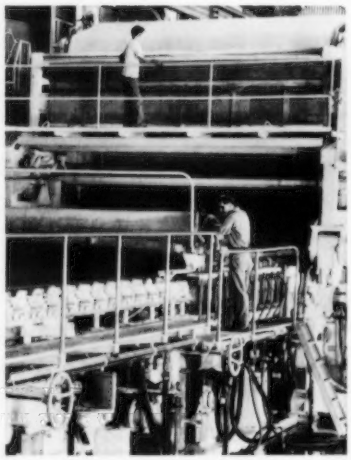
Beater Sizing



Calender Sizing



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Maintenance of Electronic Equipment in a Paper Mill

John R. Stephens

Asst. Electrical Engineer, Champion Paper & Fibre Co., Canton, N. C.

The invention of the wheel is generally recognized as man's first step toward improving his way of ife. There have been countless other devices by which man has advanced civilization. There seems to be little disagreement on the fact that the vacuum tube is one of the major tools in this advance.

With the wheel, man had to learn how to use and maintain it and its associated equipment such as bearings, shaft, etc. The vacuum tube and all the equipment that is associated with it are called electronic equipment. As with the wheel, so it is with electronic equipment—man has to learn how to use and maintain it.

In the complex industrial world of today we find many facets to the electronic maintenance problem. This paper is prepared to present the approach to the problem of maintaining electronic equipment at the plant of the Champion Paper and Fibre Co., in Canton, N. C.

Maintenance Requirements

For the purpose of discussion the requirements of maintenance at Champion are broken into two parts and each defined.

1—Trouble-shooting maintenance requires that the cause for malfunctioning or non-functioning be determined and repaired; the repair to be as permanent as possible.

2—Preventive maintenance requires that the equipment must be inspected and checked in such a manner as to discover and correct possible sources of future trouble. It must be added that the keeping and analysis of proper records is a vital part of the preventive maintenance program.

Educational Programs

Any discussion of the electronic maintenance problem at Champion could not be attempted without reference to the three educational programs in effect.

One is the apprentice program which is mandatory for all of the new electrical people. This program is supervised and instructed in part by the electrical engineering staff. The personnel selected for this program are chosen from a series of tests and performance during "on-the-job training."

The second program is the vocational educational program which is voluntary. The electrical part of this program is taught and supervised by the electrical engineering staff.

The third educational program might be called "continuous, on-the-job training," and is important whenever it becomes necessary to adopt new ideas, new equipment, or to improve on existing ideas. This program is developed around the freedom that the engineering people have in their relationship

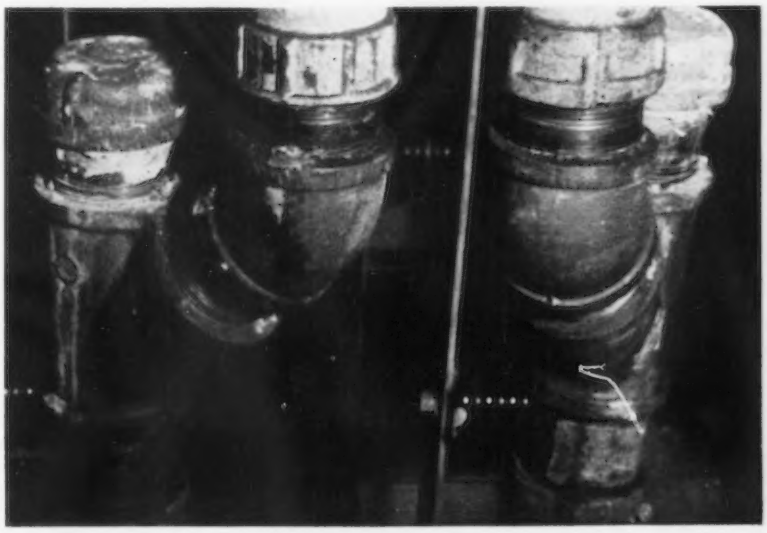

FIGURE 1—Location of electrolysis targets.

with the electrician on the job. The engineer, from his own studies becomes familiar with the new equipment, idea, or technique and is then expected to pass this information along to the man in the field. This is a two-way process, inasmuch as the man in the field has plenty of freedom to pass this "knowledge gained" along to others.

The acquisition rate for new personnel is very little greater than the attrition rate. The reason for this is much greater efficiency among the newer people due to the educational program and the increased emphasis on the preventive maintenance program.

Any effective electronic maintenance program must have well-trained personnel to carry it out. It is important to note, however, that this paper mill has not seen the necessity for establishing electronic specialists within its electrical crew.

Replacement Parts Problems

The people at Champion feel that all the energy spent in training, inspection, and trouble-shooting would be lost if the maintenance program were not backed up with adequate spare parts.

The acquisition of the initial stock of replacement parts is the responsibility of the engineer who makes the first purchase of an equipment type. The engineer uses the manufacturer's recommended list and his own experience to determine what parts are actually stocked.

It is in the recommendation for a stock of spare parts that the equipment manufacturer can be of great value to the user. The author feels that, in the preparation of the spare parts list, the manufacturer, at times, will do the user an injustice because the component parts as recommended are not broken down into the smallest components that would normally be giving trouble. This causes the spare parts inventory to be greater than it should be.

Electronic equipment is generally classified in the Canton plant into three groups. These groups are:

1—Power
2—Control
3—Instruments

The maintenance routine and a few of the specific major problems encountered with some of the equipment types will set the pattern of electronic maintenance at Canton.

Mercury Arc Rectifiers

The mercury arc rectifier installation has several maintenance problems involved.

The first and most difficult problem to solve was in the rectifier cooling system. The cooling system is, briefly, a water to water heat exchanger and an auxiliary cooling system which is supplied from the raw water system. Since the frame of the rectifier is at 50 per cent d.c. voltage above ground it becomes necessary to connect the cooling water system on the frame to the heat exchanger through a length of nonconducting hose. Where the inlet and outlet water hose are connected to the frame, an electrolysis target is required. See Figure 1. In the original installation these targets were installed as ¼ in. diameter bronze rods approximately 18 in. long.

At the end of a year, the water system was completely opened for inspection. The first thing which came to light was the condition of the electrolysis targets. From the picture, Figure 2 it is readily seen that the targets were experiencing a build-up rather than an eating away as normally expected. Tests indicated that this build-up was, primarily, metallic iron. Source of the iron was in the slag, filings, and drilling refuse from the body of the heat exchanger.

FIGURE 2—Electrolysis targets after one year.

This build-up of the target rod presented at least two immediate problems. First was the possibility that the build-up might be carried away into the water system and restrict or stop the flow of cooling water in some inaccessible part of the cooling system. This possibility could seriously damage one or more rectifier pots. Second was that the target was theoretically supposed to be eaten away by the electrolysis currents, thereby protecting the major components of the system from deterioration. Since the targets were not attached, the question arose; what, if anything, was being attacked? It was not noticeable then, but now it appears that the 2 in. copper pipe to which the hose was fastened was being attacked.

A check with the manufacturer and other users revealed that this was the first time this phenomenon had been reported. It was suggested that the rods be changed to copper and that the water be treated. The treatment recommended was a solution of sodium dischromate and borax. Semi-annual checks of the targets revealed that the build-up was reduced; however, the targets were not being eaten away as expected. The build-up reduction was due to the fact that all of the loose iron in the system had been removed.

At the last semi-annual inspection, it was noted that the targets in one rectifier were behaving normally, while in the other, it was still the same story. A check of the records indicated that there was a slight difference in the pH of the water in the two units. This slight difference was enough to be acid in the one which normal (pH 6.59) and alkaline in the one which was abnormal (pH 7.35). Quite by coincidence, there was the same difference in the other two units with the same results. The indications are that the water should be maintained slightly acid. While it is early to say that the final answer to this problem has been positively found, it is felt wise to report the findings to date.

Another problem connected with the mercury arc rectifier is in connection with the ignitor tips in the firing circuit for each pot. It is by means of a timed pulse of high energy through the ignitor tips that the mercury vapor between the anode and cathode is ionized and the tube allowed to conduct. If, for any reason, this pulse of energy is not dissipated at the contact surface between ignitor and mercury, the tube will fail to conduct. When units are operated in parallel, the tube which is operating on

the same phase with the one which failed to conduct will attempt to carry the full bus load. When the bus load is high and the cathode breaker over current trips are set for conservative protection, this attempt to carry all the bus load will trip the breaker on the unit which is not faulty. Of course the breaker on the faulty unit will trip since the faulty unit is left to carry the load.

The fact that this difficulty occurred at high loads led the trouble-shooter astray. High loads meant high voltage; and since the insulation to ground of an electrolytic cell is none too good at best, it was thought that the cells were flashing to ground and tripping the over current relays. Close examination proved this to be erroneous.

A photo-electric recorder was connected across the metering shunt on each of the two rectifiers. The units were then loaded to cause them to trip. From the indication of the photo-electric recorders it was apparent for the first time that there was time difference between the tripping of the two units, after this discovery, it was a matter of theorizing as to its cause.

Use of an oscilloscope and a recording a.c. ammeter to check the operation of individual pots proved the theory that a certain pot was mis-firing. Further investigation showed that the ignitor tip had been burned until it was no longer in contact with the mercury. The ignitor tip was replaced and the trouble eliminated.

Discussions with the manufacturer indicated that the normal life of the ignitor had been exceeded; therefore, a wholesale replacement should be made. This was attempted on one frame; but because of the difficulties involved due to de-gassing, overall down-time, and adjustment of tip contact resistance, it was decided to replace tips whenever they failed.

It is felt that the manufacturers' recommendations in this case should have been more realistic. There is sufficient evidence to believe the majority of the ignitor tips have a large percentage of their life remaining.

Maintenance of the circuits involved in the firing cabinets for the rectifier has been routinely set up so that currents and voltages in different parts of the circuit are measured and recorded. See Figure 3 for view of interior of firing cabinet. Cause for any variation from the normal is determined and proper adjustments are made. The firing circuit components are operated normally at or near their maximum rated temperature rise, so that small unbalances in current tending to overload one phase will substantially reduce the insulation life of these components.

The dry disc rectifiers in the rectifier firing circuits have given no trouble. They are routinely inspected for excessively hot discs and signs of break down. Dust and dirt are blown off with dry compressed air to allow the rectifier discs to operate as cool as possible. The mercury vapor pumps are cleaned, inspected, and gaskets replaced periodically. A definite period has not been established, but indications are that approximately two and one-half to three years will be sufficient. The actual time depends on the leakage rate on the frame for a particular pump.

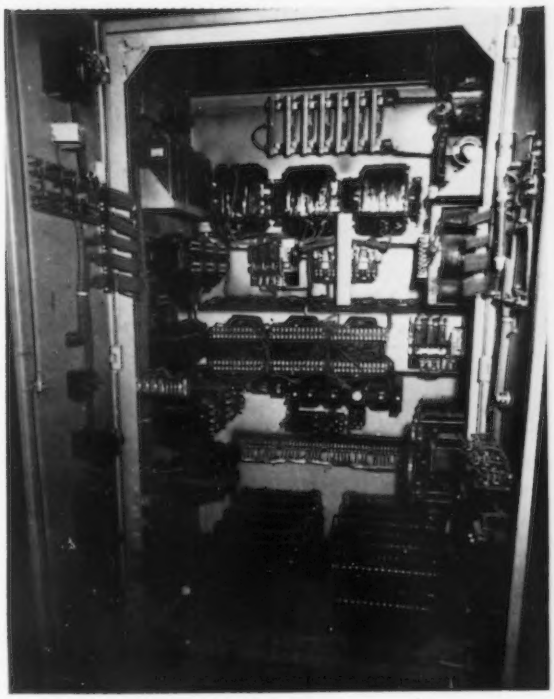

FIGURE 3—Interior view of a firing cabinet.

Rectifier station switchgear, circuit breakers, transformers, and auxiliary equipment are given standard routine maintenance care for this type of equipment and will not be covered in this paper.

Of vital importance to a well-maintained rectifier station is a high volume cooling air supply. A paper mill has some atmospheres which are harmful to electrical equipment. Corrosive vapors drawn into the rectifier station will seriously damage many elements of the station. With this in mind, a continuous check is made to be sure corrosive vapors are not drawn into the building.

The rectifier spare parts are stocked in the rectifier building. Sufficient parts are stocked to allow a unit to experience a failure of any component and still have a suitable replacement part available for installation.

Champion has a two pot rectifier unit which is complete with auxiliaries and allows for the testing of all repaired parts and new parts prior to installation on the service equipment. This allows for de-gassing pots after internal repairs to the pot.

As is generally the rule, when starting out with new equipment, the rectifier equipment was observed very closely. Now that several successful years of operation have been experienced, it is felt that the rectifier units may be operated for periods of six months without removal from service for maintenance. The six month period was determined by the requirements for cleanliness of the heat exchanger tubes.

Records kept on the rectifier installation include a daily report and a log book. The daily report is made by the operator and is an hourly log of all loads, vacuum gage readings, temperatures, and firing circuit currents. A log book is kept by the maintenance people and shows details of all equipment repairs, trouble-shooting history, details of all station switching, and any other information which might be of future use. Megger readings of insulation, water conditions, and firing-circuit voltages and currents are found in this log book.

Electronic Controls

In the equipment classification known as control, the principal equipments are:

1—Single-generator, sectional paper machine drive with amplifying ex-

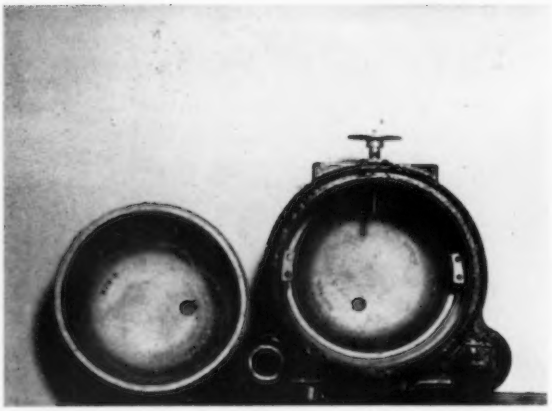

FIGURE 4—Former watertight enclosures for draw rheostats.

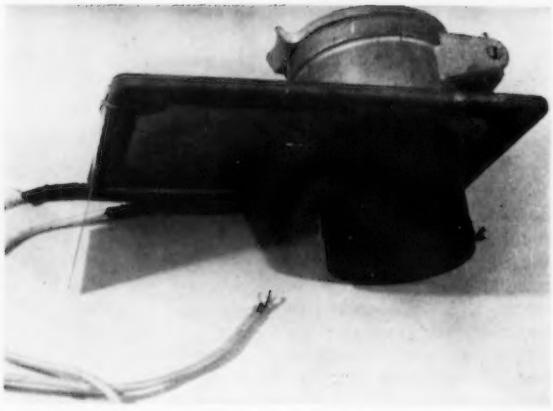

FIGURE 5—New draw rheostat enclosures are conduit junction boxes.

citers for field control of the several section drive motors, and with electronic pre-amplifiers ahead of the excitors.

2—Electronic control units for armature voltage and field control of packaged unit, adjustable speed, d.c. drives.

Paper Machine Drives

The electronic portion of the paper machine drive consists of thirteen units in quantities as follows:

1—One voltage reference power supply.

2—Two pre-amplifiers, each containing two stages of voltage amplification and one of power amplification, for the starting and running generators.

3—Ten section motor pre-amplifiers, each containing four stages of voltage amplification and one of power amplification.

The components of these units appear to be conservatively applied and, therefore, are expected to give long life. The tubes, however, do have a limited life due to their filaments; and for this reason, a special effort is made to maintain a high degree of maintenance with this component.

The principal maintenance of the components other than the tubes consists of:

1—Cleaning and inspection.

2—Close check on replacement parts.

3—Making such revisions as deemed advisable in order to speed up trouble-shooting.

4—Actual trouble-shooting.

The primary objective of the maintenance program on this machine is the reduction of machine down-time, and in this line special attention is called to Item 3 above.

Previously, the draw rheostats for the several sections were precision, helical potentiometers mounted on brackets inside watertight enclosures, such as that shown in Figure 4. Each potentiometer was coupled through a shaft extension to a dial on the outside of the enclosure. At best, about thirty minutes of machine down-time were consumed in changing one draw rheostat. These enclosures were replaced with cast iron conduit junction boxes with gasketed screw covers whereby the potentiometer could be pre-assembled on a spare cover with spade lugs on the leads for quick connection to a terminal board mounted within the box. Figure 5 shows one of these rheostats mounted on a cover. A change of one of these units has been timed at forty-five seconds of machine down-time.

Electronic Tubes in Drives

Electronic tubes are given special attention in the maintenance program at Champion since they constitute the principal expendable electronic component. The tubes used in the paper machine control are observed more closely than those of the packaged unit drives. The maintenance of tubes for the paper machine drive consists of an accurate system of record-keeping coupled with an inflexible schedule of renewal and aging and testing of new tubes.

Tubes on this drive are changed every two years. The first seven units are changed during one shut-down, and the last six units are changed during a second shut-down. The period of two years was arbitrarily assigned from experience with the first set of tubes on this drive. The first set of tubes were not aged, and two failed in the initial start-up period. During the ensuing three and one-half years, four tubes were changed due to low Gm readings; but no failure occurred during this time. The first failure actually occurred almost three and one-half years after start-up.

Tubes used in the paper machine drive control are assigned numbers for record-keeping purposes. A tube number is composed of three parts. The first part is a letter or number to designate the unit or cabinet in which it is used. The second part is the socket number according to the manufacturer's information. The final part is the actual tube serial number beginning with the number 1. These parts are separated by dashes, both on the tube and in the record book. An arbitrarily chosen quantity of each tube type is known to be good is lettered "test" for testing purposes. All numbering of tubes is done with a heat-resisting chrome enamel.

In the tube record book one page is assigned to each tube socket installed in the equipment. This page has the following columns:

1—Tube Number

2—Date

3—Tube Type

4—Gm (One or more columns as required)

5—Remarks

Each time a tube is tested, one entry is made in the book. Each time a tube is changed, two entries are made. The first entry is the number of the old tube and reason for removal, and the second entry is the number of the new tube and test data at time of installation.

The treatment of new tubes prior to installation consists of the following steps: Upon receipt of an order of new tubes, the purchase order number is stamped on each tube carton before the tubes are placed in storage. When a new tube is to be prepared for installation, it is removed from its carton and numbered, aged, tested again, and inserted in its proper place in the storage rack. One complete set of pre-numbered tubes with aged filaments is kept on hand. These tubes are kept in racks such as shown in Figure 7. The tubes are held in the racks by friction of the pins against the sides of the

holes. In this way, tubes receive no shock and are in an orderly arrangement for easy access.

Only the filaments of the tubes are aged. They are connected 18 in series across the 115 volt supply. There is, in addition, a parallel circuit fed from a filament transformer for miscellaneous small quantities of tubes. The type 2A3 tubes are fed from a 2½ volt filament transformer. The aging equipment was designed and built at Champion. See Figure 6. Tubes are aged nine days, and a total of eighteen days is required to age one set of tubes. Standard tubes are used except in special cases where rugged types are needed due to excessive vibration.

The "test" tube mentioned previously is used in trouble-shooting. When trouble is experienced and a tube is suspected, all of the tubes in the particular unit are replaced with the test tubes. If the trouble is cleared, the faulty tube is found by the tester, and the remainder are returned to service during the next shut-down.

Packaged D. C. Drives

The maintenance program of the packaged unit d.c. drives is much simpler than that of the paper machine drives; although they are similar. Since extreme reliability is not required on these machines, maintenance is not so critical. The vacuum tubes in these units get the same pre-installation treatment as on the paper machine units. The gas-filled tubes, however, get a special treatment due to a peculiarity in the machine operation. These four tubes are divided into two pairs, each pair consisting of one thyratron and one half-wave rectifier, together constituting the power source for excitation of one field. The duty on one pair of these tubes is about three to four times that of the other pair due to the intermittent operation of the machine. In an attempt to more nearly equalize the life of these two pairs of tubes, the pairs are swapped every three months. A removable tag is used to identify socket numbers, and these are swapped along with the tubes in order to facilitate record-keeping.

The gas-filled tubes are not aged, and the only test is by replacement and observation. These tubes are changed only on failure.

The electronic control unit for each of the packaged-unit d.c. drives consists of the gas-filled tubes mentioned above for the excitation of the motor and generator fields with the necessary auxiliary tubes to perform such special functions as acceleration, deceleration, generator-to-motor crossover, etc.

For these units a complete unit is maintained as a spare for the other four units. These units are made up

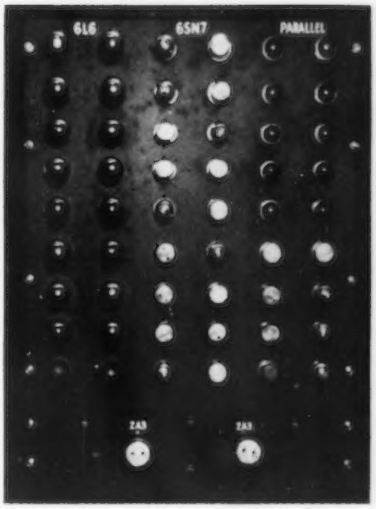

FIGURE 6—Special equipment for aging tubes developed at Champion.

with both soldered and bolted connections, and the exchange of complete units affords the best trouble-shooting procedure when the possibility of tube trouble has been ruled out. The special care of tubes is covered under "tube maintenance."

Temporary Test Set-up

A temporary test set-up has been arranged for complete analysis of a case of trouble. This set-up includes a d.c. generator and the field of a d.c. machine or an a.c. synchronous machine, a power supply transformer and operating rheostat. This test set-up is necessary if trouble-shooting is to be accomplished on units not in service. The unit is connected either to the machine or to the test set-up with sixteen electrical connections and is mounted by eight screws.

In each of the above equipments all necessary identification such as socket numberings, etc. is done in large, clearly legible letters and figures. This practice is further carried to the auxiliary equipment associated with these equipments.

The auxiliary equipment included with the electronic equipment are: amplifying exciters, regular exciters, and permanent magnet d.c. pilot generators, etc. for the paper machine drive, and power supply transformers, a.c. voltage regulators, etc. for both equipments.

Each amplifying exciter is mounted on a rigid, self-supporting base with its own private a.c. motor drive. These machines were originally built on a rack behind the controller, were wired directly into the remainder of the equipment, and required approximately 45 minutes to change-out. These machines are still mounted on the above mentioned rack, but are now electrically connected with portable cord and spade-type terminals. One electrician can now change one of these machines with a loss of five minutes or less on the machine. This is accomplished by delivery of the spare motor-generator set to the rear of the controller on casters. The necessary electrical connections are made and the spare unit placed into service while its rests on casters on the floor. At such time as the machine is down for clothing or repair, these sets are physically changed. Figure 8 shows a set being operated while resting on the floor.

A quick change-out procedure for the pilot generator has not yet been accomplished. The nearest approach is the replacement of the armature by removal of the commutator-end shield. Spare armatures are kept with bearings assembled and wrapped in aluminum foil. This measure serves to reduce change-out time to about twenty minutes as contrasted to about 45 minutes for a complete change-out of the pilot generator.

The greatest amount of down-time attributable to a single electronic component was due to the short-circuiting of one turn in the secondary of a

FIGURE 7—Special racks hold processed tubes.

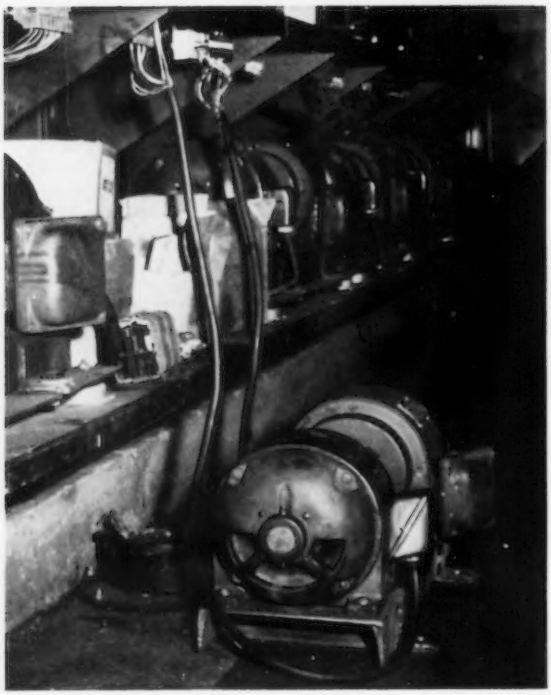

FIGURE 8 — Spare amplifying exciter in temporary location.

filament transformer. Since this case was experienced, a rectifier-filter component has been constructed so that filament voltage can now be continuously observed by using a photoelectric recorder in conjunction with this component.

Rules for Electronic Maintenance

A few simple rules are deeply impressed on the minds of the electrical men:

1—If the condition of an electronic component is doubtful, *destroy* it.

2—Do not attempt to repair electronic components such as transformers, sockets, etc.

3—Do not use a tube in any socket except that for which it was numbered.

4—Destroy any tube that has been replaced by its succeeding tube.

5—Make use of machine down-time to replace any doubtful components such as resistors and paper capacitors. After all, these components are inexpensive.

6—Use ruggedized tubes in all high-gain stages and in any other place where standard grade tubes prove incapable.

7—Learn the circuitry and simplify it where practical. A slight sacrifice in performance or versatility sometimes pays big dividends in maintenance.

8—Make all adjustments as recommended by the factory.

The Canton mill in its organizational lineup provides for the instrument section to come under a separate departmental head from the engineering and electrical section. It is the function of the instrument section to install and maintain all process instruments.

Process Instruments

The types of process instruments wherein electronics is involved are as follows:

1—pH Amplifiers
2—Dynalogs
  a. Resistance Type
  b. EMF Type
  c. Potentiometer Type
3—Oxygen Recorder
4—Beta-Ray Profiler
5—Photometers

A very interesting statistic should be noted here. There are approximately fifty instruments classified as electronic types and in the fifty, there are thirty-five different vacuum tube types.

pH Meters

Routine maintenance for the pH meters consists of a weekly check of the instrument with a standard buffer solution.

Yearly maintenance checks for all instruments provide for:

1—Tube check

2—All the mechanical parts requiring lubrication are lubricated.

3—The door gaskets are checked to be sure all corrosive atmospheres are kept out of the instrument.

4—The recording system is thoroughly checked and worn or corroded elements replaced.

Some of the troubles which are experienced and should be reported are:

1—The pH electrode assemblies have their glass electrode broken by foreign material. This occurs upon the start-up of a new system or in an old system after a repair day.

2—The pH electrode assembly often will become coated with the cleaning compounds used to clean washer wires.

The spare equipment required for the adequate maintenance of the process instruments include a complete spare amplifier and sufficient component parts to correct a mal-functioning dynalog by swapping the component parts.

A card record is kept on each instrument which carries a detailed history of the instrument. A description of all work done on the instrument is recorded on the card.

Eight Components of Electronic Maintenance

Electronic maintenance in a paper mill finally must be said to consist of the following:

1—A well defined goal, for without it there would be no aim for all the efforts expended.

2—A full understanding and knowledge of the equipments involved. Without this knowledge the capabilities and limitations for equipments would be unknown. This should be backed up by technical help from the equipment manufacturer.

3—A system of record-keeping which will allow for the proper study and evaluation of maintenance efforts.

4—A training program whereby trained personnel are made available for the maintenance effort.

5—An adequate inventory of replacement parts developed from the recommendations of the manufacturer and the experiences of the user.

6—A knowledge of the problems peculiar to an individual mill, and how to solve those problems.

7—An available source of metering and test equipment properly selected to be of the greatest value when used on the equipment involved.

8—An open mind to any and all circuit and equipment improvements which might reduce the maintenance task and thereby increase machine availability.

In the rapid advance man is making there will be more and more electronic equipment for the maintenance personnel to be responsible for. If the eight components of electronic maintenance listed above are followed, new equipment will present no great problem.

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PRICES OF FIBERS

MARKET WOOD PULP

SECOND QUARTER CONTRACT PRICES PER SHORT AIR-DRY TON

Delivered Basis

	U.S.	Canadian	Swedish	Finnish	Norwegian
Groundwood	$82.50/ 90.00	$82.50/ 90.00	$83.00/ 86.00§	$92.00/ —	$77.50/ 90.00§
Kraft, Blchd.	152.00/155.00	155.00/ —	$155.00/ —		$155.00/ —
Kraft, Blchd. Hdwd.	150.00/ —		$137.00/ —		
Kraft, Semi-bleached	140.00/ —	135.00/140.00	$135.00/140.00§	*137.50/142.50	
Kraft, Unbl.	117.50/125.00	120.00/130.00	†125.00/130.00	125.00/ —	
Sulphite, Blchd.	150.00/ —	150.00/ —	*150.00/ —	*150.00/ —	145.00/147.50†
Sulphite, Unblchd.	130.00/ —	130.00/ —	†130.50/ —	*130.00/ —	
Sulphite, Unb'l. Gl'sn		129.00/ —	†129.00/ —		
Soda, Blchd.	142.50/145.00	145.00/ —			

§ On Dock Atlantic Ports. * Freight allowed. † Varying Freight Allowances

NEW YORK RAG MARKET

New Domestic Cotton Cuttings
Delivered Mill Basis
PRICES NOMINAL

	Per 100 lbs.
No. 1 White Shirts	$13.50/$14.00
No. 1 Unblchd. Muslins	16.00/ 16.75
Blchd. & Unblchd. Underwears	15.00/ 15.50
No. 1 Light Silesias	7.00/ 7.50
No. 1 Light Blue Overalls	7.25/ 8.00
Percales	6.00/ 6.50
No. 1 Light Prints	5.00/ 5.50
Suntan Khakis	5.50/ 6.25
Cottonades	3.25/ 3.75
No. 1 Washables	2.50/ 2.75

Old Domestic Cotton Rags

(Prices to Dealers, f.o.b. Ship. Pt.)

	Per 100 lbs.
Mixed White	$3.00/$3.25
Cotton Pants & Overalls	2.00/ 2.25
Twos and Blues, Repacked	1.50/ 1.75
No. 2 Roofing	.60/ .70

COTTON LINTERS

Memphis Market
f.o.b. Oilmills

Week Ended July 22	Per 100 lbs.
Grade 1 e.a.	
2	$9.50/ $9.25
3 1 cut—felting	9.25/ 8.50
4	8.25/ 7.50
5	7.50/ 7.00
6	6.50/ 6.00
7	6.00/ 5.75

*Based on 73% cellulose.

Old Rope & Bagging

(Prices to Dealers, f.o.b. N.Y.)

	Per 100 lbs.
New Burlap Cuts	$5.75/$6.50
Scrap Burlap	4.50/ 5.25
Australian Wool Pouches	5.25/ 5.75
Gunny	5.50/ 6.25
No. 1 Domestic Manila Rope	7.75/ 8.25
No. 1 Foreign Manila Rope	6.25/ 6.50
Domestic Sisal Strings	4.25/ 4.50

WASTE PAPER MARKET

Mill Prices, f.o.b. Trucks Shipping Point — Includes Brokerage

These quotations are a partial indication of the price range on volume tonnage in each market on the date specified, as gathered from major dealers. SPECIAL PACKINGS AND SPOT TONNAGE NOT INCLUDED. Prices nominal.

	New York	Boston	Chicago	Los Angeles
	July 22	July 22	July 22	July 22
No. 1 Mixed Paper	$4.00/ 6.00	5.00/ 7.00	4.00/ —	12.00/ —
No. 1 News	10.00/ 12.00	11.00/ —	12.00/ —	11.00/ —
Overissue News (Lg. size)	13.00/ 16.00	9.00/ 12.00	17.00/ —	13.00/ —
Mill Wrappers	12.00/ 14.00	11.00/ 12.00	7.00/ —	13.00/ —
Old Corrugated Containers	18.00/ 19.00	15.00/ 16.00	22.00/ —	18.00/ —
Super Resorted Kraft Paper	30.00/ 35.00	35.00/ 36.00	30.00/ —	45.00/ —
New Double Kr. Ld. Corr. Cuts (Semi-chem. medium)	30.00/ 35.00	30.00/ 35.00	35.50/ —	30.00/ —
New 100% Kraft Corr. Cuts	40.00/ 45.00	40.00/ 45.00	40.00/ 45.00	40.00/ 45.00
New Br. Kraft, Env. Cuts	50.00/ 55.00	50.00/ 55.00	55.00/ —	40.00/ —
New Br. Kr. Bag Waste Prntd.	65.00/ 75.00	75.00/ 80.00	55.00/ —	45.00/ 50.00
New Br. Kr. Bag Waste Unprintd	55.00/ 60.00	60.00/ 65.00	50.00/ —	45.00/ 50.00
	60.00/ 65.00	70.00/ 75.00	65.00/ —	45.00/ 50.00
No. 1 Groundwood Shvs.	25.00/ 30.00	25.00/ 30.00	22.00/ —	25.00/ 30.00
White Newsblanks	50.00/ 55.00	45.00/ 55.00	40.00/ —	55.00/ —
No. 1 Soft White Shvs.	55.00/ 65.00	60.00/ 65.00	60.00/ —	— / —
Super Soft White Shvs.	65.00/ 70.00	70.00/ 75.00	70.00/ —	— / —
Hd. White Shvs.	90.00/ 95.00	100.00/105.00	85.00/ —	85.00/ 90.00
Hd. White Env. Cuts	110.00/120.00	115.00/125.00	95.00/ —	100.00/110.00
Col. Tab. Cards	45.00/ 50.00	50.00/ 55.00	47.50/ —	30.00/ —
Manila Tab. Cards	60.00/ 65.00	65.00/ 75.00	65.00/ —	49.00/ —
No. 1 Col. Ledger	30.00/ 32.00	30.00/ 35.00	40.00/ —	27.50/ —
White Ledger	50.00/ 55.00	50.00/ 55.00	55.00/ —	35.00/ 40.00
Mixed Book & Mag.†	18.00/ 20.00	19.00/ 20.00	12.00/ —	— / —
No. 1 Books‡	25.00/ 27.00	24.00/ 26.00	27.50/ —	— / —

† Includes Time & Life; no coarse groundwood. ‡ Not to exceed 10% of groundwood.

PRICES OF MATERIALS

Aluminum sulphate:		
coml. bulk, c.l. wks.	cwt.	$1.85 / 2.05
iron-free, c.l. wks.	cwt.	3.55 / —
Casein, acid prec.:		
dom. sh. pt. c.l. (30 mesh)	cwt.	56.00 / —
Arg. ex. dock, duty paid	cwt.	24.50 /25.50
New Zealand, do.	cwt.	27.50 /28.00
Caustic soda:		
c.l. wks. solid, 76%	cwt.	4.30 / —
flak. & grd. drums, c.l.	cwt.	4.70 / —
liquid 50% tanks		2.90 / 3.00
liquid 73% tanks		3.00 / 3.10
China Clay		
dom., dry-grd., airfloat:		
325 mesh bgs., c.l. Geo.	ton	10.00 / —
300 mesh, bgs., c.l. Geo.	ton	13.50 /14.50
imp., white, lump, c.l. ex. dock		20.00 /35.00
Chlorine:		
single-unit tanks, works	cwt.	3.15 / —
multiple unit, 2-5 cars per yr.		5.25 / 4.05
Formaldehyde:		
37% (inh. 8% methanol) USP:		
drums, c.l. dlvd.	lb.	.0715/ —
tank-cars dlvd	lb.	.045 / —
Lime:		
hydrated, bulk, c.l. N.Y.	ton	22.32 / —
quicklime, bulk, c.l. N.Y.	ton	20.82 / —
Gum rosin:		
K, M, N, drums, c.l. Savan,	cwt.	7.45 / 7.55
Rosin size:		
70%, gum & pale paste, tank cars, south, sh. pt.	cwt.	7.44 / 7.48
Saltcake:		
dom. bulk, 100% anh. wks.	ton	28.00 / —
Soda ash		
light, 58% ash bags, wks.	cwt.	1.90 / —
bulk, c.l. wks	cwt.	1.60 / —
Sodium peroxide:		
dms., c.l. E. of Miss.	lb.	.20½/ —
l.c.l. (same basis)		.21 / .21½
Sodium silicate, 40° Be.:		
tank-cars, wks.	cwt.	1.20 / —
drums, c.l. wks.	cwt.	1.55 / —
47° Be. WW.		
tank-cars, c.l. wks.	cwt.	1.90 / —
drums, c.l. wks.	cwt.	2.25 / —
Soybean, protein:		
chem. isol., wks. c.l. bags	lb.	.23 / —
Starches:		
corn, multiwalls, c.l. prod. plant:		
pearl	cwt.	6.49 / 6.75
white, dextrins	cwt.	8.08 / 8.20
chlorinated	cwt.	8.25 / 8.35
potato, Idaho, c.l. wks.	cwt.	6.50 / —
East, fr. all. 50 cents cwt.		
potato, Maine, f.o.b. wks.	cwt.	6.25 / —
Sulphuric acid:		
60° Be. cbys. c.l. wks.	cwt.	2.00 / —
l.c.l. wks.	cwt.	2.45 / —
tank-cars, wks.	ton	18.60 / —
Sulphur:		
crude, c.l. mines, contract,	long ton	26.50 / —
f.o.b. vessels Gulf dock	ton	28.00 / —
Sulphur dioxide:		
liquid, coml. cyl., wks.	lb.	.10 / .12
multi-unit cars, wks.	lb.	.0535/ —
Talc, fibrous grd., bags:		
c.l. wks., N.Y.	ton	28.00 / —
l.c.l. wks., N.Y.	ton	31.00 /36.00
Titanium dioxide:		
anstase, c.l. dlvd. E. bags	lb.	.25½/ —
l.c.l. dlvd.	lb.	.26½/ —
rutile, c.l. dlvd.	lb.	.27½/ —
l.c.l. dlvd.	lb.	.28½/ —

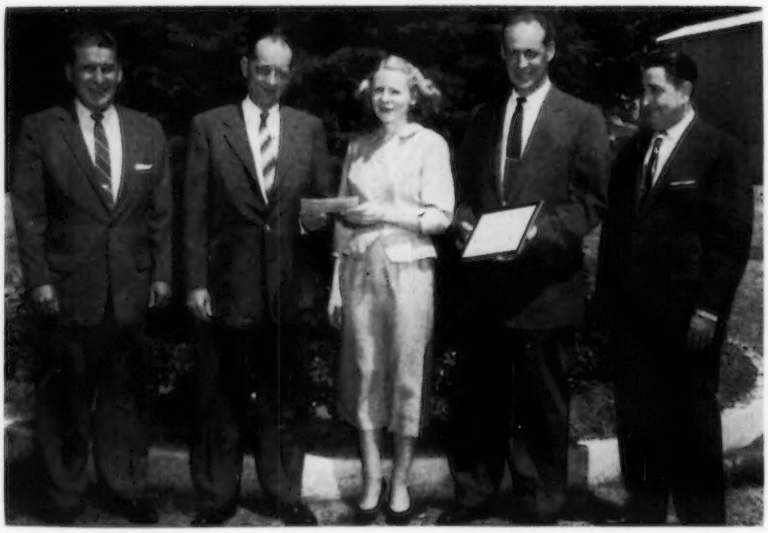
Prize Winning Bolton Award Paper...

My Responsibilities to the Others in My Company

Ellen Arnold

Secretary to Plant Engineer, Congoleum-Nairn, Inc., Cedarhurst, Md.

My responsibilities to the others in my company are somewhat akin to my responsibilities to the others in my home, my church, my country, and my community. One doesn't really belong to any group unless he shares some of the burdens of that group. "A chain is only as strong as its weakest link" is a truism and I like to think of my part in our paper mill as a link—not the weakest, I hope—in the process of transforming the most unglamorous of raw materials—rags, paper, and wood—into something useful and beautiful.



Attending Bolton Award presentation of prize to Ellen Arnold, secretary to plant engineer at Congoleum-Nairn, Inc. are left to right, James R. Mann, Congoleum-Nairn plant superintendent and seventh Bolton Award winner in 1954; John G. Bolton, president of John W. Bolton & Sons, Inc.; Miss Arnold; Harry S. VanRyper, Bolton-Emerson sales representative; and Alver E. Sprinkle, Congoleum-Nairn plant manager. Mrs. Arnold received a check for $500 and a hand engrossed wall plaque.

To Whom?

Let's look around and see who the "others" in my company are. First of all, there's my boss, my immediate supervisor or foreman, who represents the company's management to me. Thus, my responsibility to my immediate supervisor and my responsibilities to the company management are the same. Then, there are my close work associates, those coworkers who are more or less on the same level as I. Next there would be what I choose to call my other fellow employees—those in the company with whom I have no direct contact. Higher on this list would be my subordinates if I had any. However, were I in a position of supervision, I know that I would feel certain responsibilities to those who worked for me.

My Foreman

My first responsibility to my foreman or immediate supervisor is obedience—obedience in performing the duties he outlines for me and, since he represents management to me, obedience to the company's rules. In the performing of my work it is my responsibility to fulfill those tasks assigned to me in a competent, expeditious manner. I should sometimes offer suggestions if I believe there is a more economical, safer, or more effective method of reaching the result desired, but I should never question my foreman's authority. If my suggestions are not accepted, I should accept his decisions gracefully, realizing that most directives are well thought out in advance by more experienced individuals than I.

It is my responsibility to my foreman to have an imaginative mind and a scientific interest in learning. Inquisitiveness leads to knowledge, knowledge to progress, and progress to greater profits for my company. Without creative ideas from its employees, a company will come to a stalemate and die. I should constantly be learning something, even if it is not related to my job, to keep my powers of concentration intact and to make me more broad-minded so that I can see better another's viewpoint. I am accountable to my boss to be loyal to him and to uphold him and his department to others. Grievances or differences should be discussed with my foreman who is in a position to act on them and should not be spread as gossip to other areas. If I do not respect and cannot be loyal to my foreman, praise God, I live in a country where I am not bound to work for him.

I am committed to my foreman to be willing, to be easy going, to be untemperamental, to have a good sense of humor, and to be reliable. I should be friendly and courteous to visitors in

his department—you never know, they might be customers! I am responsible to my foreman to keep my work area clean and orderly. I should be sympathetic and try to imagine myself in his position so that I can understand better his problems and his decisions.

My Close Work Associates

When we think of our accountability to others in the company, our co-workers are often neglected. These people are most important, particularly because most of the hours spent at work are in association with them. My co-workers expect and should expect me to hold up my end of the work load. If part of their work is dependent upon my completion of a given task, I should see that my job is done accurately and on time. When a co-worker is apparently over burdened, I can offer a helping hand; this can lift his morale and win a friend. I once heard a vice president of our company say that he owed his success to being fortunate enough always to have helpful people around him, pushing him to the top. He was the type of person, I am sure, who never passed up an opportunity to give assistance when it was needed. I owe it to my co-workers to be approachable, to have a friendly, cordial manner and to be the type of individual from whom my co-workers would want to seek help. I owe it to my co-workers to try to discover my irritating mannerisms and to correct them. I should be interested in their triumphs and their failures and offer the Christian hand of fellowship on the job.

My Other Fellow-Employees

Next are the people in my company with whom I have no direct contact. I am responsible to these people, as well as to those I know, to do my job to the best of my ability. Everyone in the company doing his best will make for a lively, prosperous company and jobs of everyone will be more secure and more rewarding.

My Subordinates

Then, there are certain responsibilities that I hope I would feel to each of my subordinates. If I had a subordinate, first of all, I would instruct him on his job as it is related to all other company operations. This would not only be helpful to him in executing his duties but it would make him more aware of the far-reaching ramifications of his job. I would recognize his accomplishments by a complimentary word, realizing that it is only human to desire recognition of a job well done. I would let him know where he stands, offering friendly advice and constructive criticism. I would feel the responsibility to try to provide him with a clean, safe place to work and to give him modern tools to work with. I would be responsible to see that he is paid in accordance with his job performance, his ability, and his attitude toward his job.

It Works Both Ways!

This business of being responsible to the others in my company works in two directions. I know that the more I realize my responsibilities and fulfill them, the more my company will profit, and the more my company profits, the more I will profit.

Simple Identification of Woods

The problem of identifying different kinds of wood is simplified by a new handbook prepared at the U. S. Forest Products Laboratory and just published by the Forest Service, U. S. Department of Agriculture. The book contains full-color, natural-size photographs of 32 common United States woods. Simple, nontechnical descriptions tell how to distinguish each species by color, grain markings, and other characteristics easily seen in the photographs.

The handbook, entitled "Wood: Colors and Kinds," is available for 50 cents as Agricultural Handbook 101 from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

The illustrations were reproduced by the most advanced photographic and color printing processes available in order to assure that color, grain, and other identifying markings would be as true to life as possible.

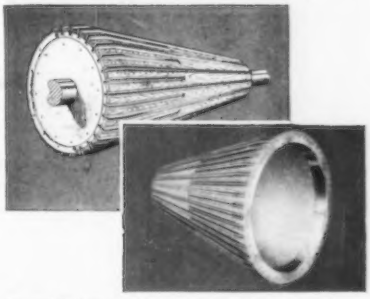
The 32 kinds of wood pictured actually represent more than 60 American species, points out Dr. Kukachka. This is because some species are so much alike that their wood cannot be differentiated even under the microscope. In these cases, species differences are mainly in the leaves, fruit, and bark.

Eighteen hardwoods and 14 softwoods are described and pictured. The hardwoods include American beech, American sycamore, rock elm, American elm, black walnut, black cherry, hickory, white ash, quaking aspen, American basswood, sweetgum, black tupelo, white and red oak, yellow birch, sugar maple, yellow-poplar, and cottonwood.

Softwoods include baldcypress, redwood, incense-cedar, western red-cedar, shortleaf pine, ponderosa pine, Sitka spruce, Engelmann spruce, sugar pine, western white pine, western larch, Douglas-fir, western hemlock, and white fir.

REVOLUTIONARY ADVANCE

In Jordan Plug Design



In addition to the strongest and most adaptable solid plug ever developed, Adapta-Plug is available in sleeve form for easy, economical conversion of old worn plugs.

E.D. Jones Adapta-Plug

Completely bandless, easily stripped and filled. Inverted-wedge-type slots hold bars firmly in place, eliminate hazards of slot wear and corrosion. Any desired edge available. Write for Bulletin EDJ-1094.

Complete ONE-PIECE assembly to fit shell of any Jordan

E.D. Jones FULBAR SHELL FILLINGS

Ideal filling for any Jordan, new or old, of any make. No keys or wedges needed. Easy to grind in. Many other advantages. Write for Bulletin EDJ-1094.

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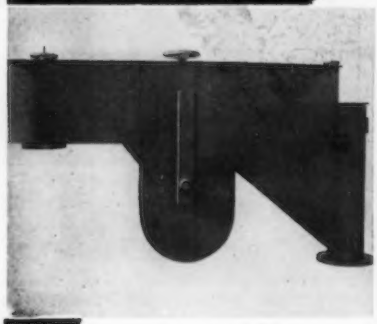
POIRIER
Counterflow



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Consistency—Weight Regulation

Poirier's Automatic Counterflow Regulator is guaranteed to control basis weight and volume regardless of stock consistency.
To you this means better finished paper, quicker, easier and more economically.

Here's Why:—

* Regulates both volume and consistency of up to 900 tons of stock per 24 hours.
* Consistency controlled to within (+−) 1/10 of 1%, basis weight (+−) 2%.
* Volume regulated even when stock is too light to be controlled by consistency.
* Increased yardage by using all stock in chest on each run.
* 4 separate and distinct controlling actions.
* Only 1 adjustment—can be operated by remote control.

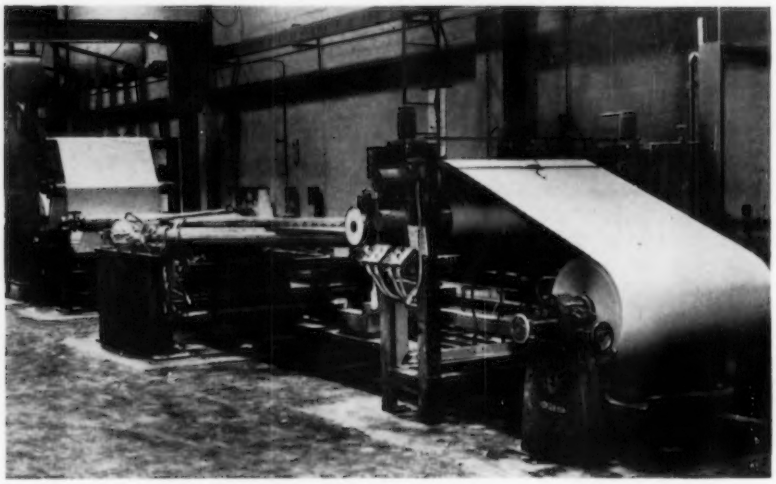
Let our engineers study your operation and furnish you with complete details on how a Poirier Counterflow Regulator will help you as it has others. No cost—no obligation.

Write for full information

POIRIER CONTROL COMPANY
Waterville 1, Maine

Specialists in Stock Control Equipment

NEWS OF CONVERTERS



New Gum Breaker Runs at 2100 FPM

Improvements in the design of a new gum breaker machine recently put into operation have resulted in greatly increased speed and a minimum of maintenance when compared to existing gum breakers of older design. This new unit is in operation at Eureka Specialty Printing Co., Scranton, Pa., on gummed paper such as stamp and label stock for web widths to 52 inches. The machine is running at 2100 f.p.m.—three times faster than older machines.

The gum breaker machine was developed through a combination of ideas from Eureka and the Dilts Division of Black-Clawson Co. William Mitchell, converting superintendent of Eureka, originated most of the ideas for the machine and the execution of the design to make it practical was done by Dick Phelps, chief engineer at Dilts and Tom Potter, project engineer at Dilts.

Constant tension is maintained from full roll down to the core by a running belt tension unwind stand which has a controller, recorder and indicator tied into the air system of the running belts. A spring roller follows the unwind to take out any shocks that might be caused by out-of-round rolls.

The new gum breaker uses pivoted lead rolls to obtain the correct web lead and these rolls are all air-operated so the web can be fed directly through in a simple fashion. The breaker knives are mounted in heavy, water-cooled body castings and are electrically actuated and automatically raised for straight-through threading. The knives are connected to limit switches so they automatically retract on a web break or on start up, return automatically to a pre-set and pre-selected position at the push of a button.

The breaker knives can be rotated and adjusted for varying degrees or angles of contact of break. They can be raised either individually or all together as desired.

The machine employs specially constructed 6-in. diameter permanently located bars following the breaker knives instead of smaller diameter rods which have caused a maintenance problem on older machines in the field.

The pull rolls on the new gum breaker are air actuated for easy threading and are tied into the automatic retraction system for the lead rolls and knives. A center type current regulated winder is used on the machine.

New Non-Stick Paper Developed by Fasson

Manufacturers and packagers of very sticky material can now purchase a new type of easy release paper just developed by Fasson Products of Painesville, Ohio.

Fasson release liner resists adhesion even by extra high tack materials such as synthetic and natural rubbers, asphalts and tars, gums and pressure sensitive adhesives.

This material was developed by Fasson as an easy release backing paper for their own exceptionally high tack adhesives, but is now being promoted as a separate product.

Dobeckmun Develops New Carton Overwraps

The Dobeckmun Co., Cleveland, Ohio, announces it has developed "Metalseal," a new foil-paper combination designed especially for carton overwrapping. It is designed to heat-seal quickly and is said to resist moisture vapor which often penetrates packaged products.

Mail-Well Envelope Plans New Oregon Plant

Mail-Well Envelope Co. will build a new $500,000 plant in the Kellogg Park industrial area just north of Milwaukee city limits, near Portland, Ore.

The new plant will be located east of Highway 99E, adjacent to the state highway department establishment. It will be the first plant in the new industrial tract being developed by Hoffman Construction Co., which recently acquired the land from the federal Public Housing Administration.

W. R. Lake Sr., president of Mail-Well, said the contract has been let to Hoffman for a 75,000 sq. ft. office and manufacturing building designed by the architectural firm of Jensen & Gilham.

The production area will be a one-story structure of tilt-up concrete construction with glulam beams. The two-story office area will have brick and metal exterior. Parking space and railroad spur tracks are included in the design.

The envelope company will occupy the new plant early in December.

F. W. Egan

E. F. Egan

Frank W. Egan & Co. Announce Executive Change

Frank W. Egan has been appointed chairman of the board of Frank W. Egan & Company, Somerville N. J. by the firm's board of directors. Mr. Egan, founder of the company which manufactures machinery for the paper converting and plastics industries, formerly served as president. He is succeeded in that post by Vice President Edward F. Egan.

David A. Verner was named to the newly created position of chief engineer, following Edward Egan's promotion to the presidency.

Lord Baltimore Names Packaging Sales Manager

Ernest Heath, Jr., has been appointed product sales manager of flexible packaging for The Lord Baltimore Press, a producer of folding cartons, wraps, and labels.

For the past three years, Mr. Heath was sales manager of the Flexible Packaging Division of Arkell and Smiths. Prior to that post, he was associated with Dobeckmun Co. and its subsidiary, Ben Mont Papers, Inc., where he served as manager of market development.

The Lord Baltimore Press maintains plants in Baltimore, Md., and San Leandro, Calif., and plans to complete in 1958 a new plant at Clinton, Iowa. Mr. Heath will be located at the company's executive sales offices at 425 Park Avenue, N. Y.

Sun Chemical Closes Purchase of Ink Company

Sun Chemical Corp. has completed purchase of the Bensing Brothers & Deeney Companies, manufacturer of flexographic inks for packaging materials.

Bensing Brothers & Deeney will continue to operate under its present name and with its present management as a subsidiary of the Sun Chemical.

Kalamazoo Glazed Tile Tanks

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6 Reasons why you should give us a call on your next job

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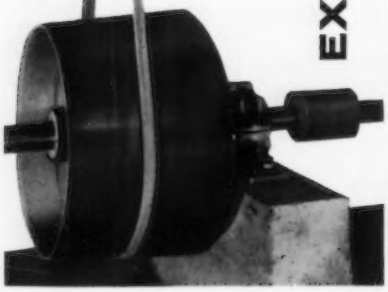


NEW EQUIPMENT AND SUPPLIES

Portable Hydraulic and Pneumatic Test Stand

A new, bench-type hydraulic and pneumatic test stand called "Porta-Tester" has been developed by Farris Engineering Corp., 524 Commercial Ave., Palisades Park, N. J., for use wherever pressure equipment must be tested without an external source of power. The unit is completely self-contained, low in cost and easily portable.

The Farris "Porta-Tester" is designed for testing safety and relief valves, globe, gate, plug and other valves, pressure vessels, piping and pump cases. It is suitable for the liquid testing up to 3000 p.s.i. of male screwed valves ½" through 3" inclusive and all female screwed valves ½" through 1" as well as flanged valves to 4" with 600 lb. A.S.A. flanges. The unit is furnished with mounting adapters, hand pump and gauges and an air connection is provided for seat-leakage testing.

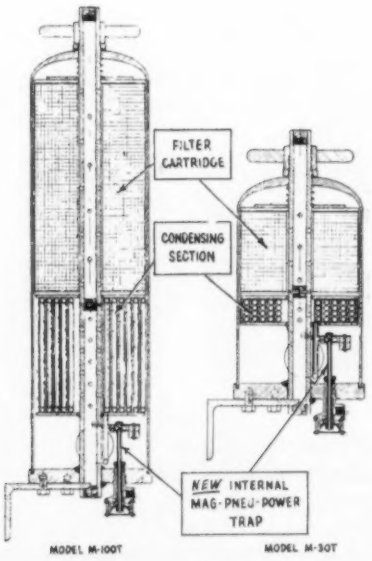
First All-Plastic Check Valve

The first all-plastic lift check valve has been introduced by Walworth Co., 60 E. 42 St., New York, N. Y. Body and components of the new valve are made of normal impact rigid polyvinyl chloride to provide high corrosion resistance to alkalis, acids, etc. A highly durable PVC spring positions the disc to assure quick and complete shutoff.

The new PVC check valve operates successfully at pressures up to 150 p.s.i. at 75°F. Complete shutoff is reported to have been obtained with the valve during and after 2 million continuous cycles under 125 lbs. of air and 50 lbs. of water.

A long service life for the valve is provided by the all-PVC construction. The valve has been completely immersed in corrosive fluids for a long period of time without any damage to its body and components. The PVC spring which controls the valve's disc retained its resilience after several million operating cycles.

The valve is available for pipe from ½ through 2 inches in size, and comes in either threaded, solvent-weld socket-type or flanged ends.



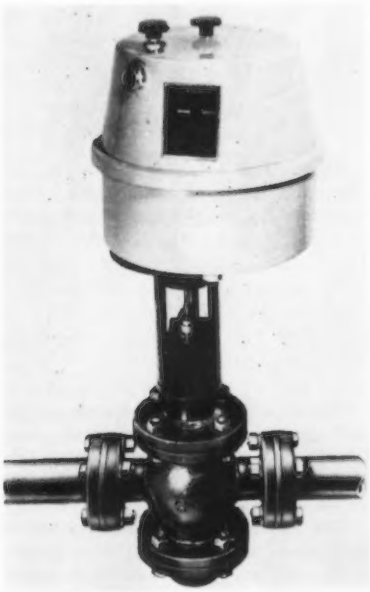
Condensifilters with Mag-Pneu-Power Trap

The Hankison Condensifilter, a unit that condenses out moisture and oil vapors and filters out solid contaminants from compressed air and gas, is now available with an internal Mag-Pneu-Power Trap. Model M-30T and Model M-100T Condensifilters, manufactured by Hankison Corp., 951 Banks-

ville Road, Pittsburgh 16, Pa., now combine an internal condenser, disposable filter cartridge, and automatic condensate discharge in one complete unit.

The Mag-Pneu-Power Trap, which is also sold as an external unit, is a pilot-actuated, power-operated mechanism that discharges condensate by using a combined magnetic-pneumatic action. A pilot valve is used to trigger a system-air-powered piston which opens and closes the main discharge valve. With only two moving parts, the trap is said to be virtually trouble-free, yet can be serviced easily.

The Mag-Pneu-Power Trap complements the work of the Condensifilter by discharging the moisture and oil, entrainments, dirt, scale and other residue removed from compressed air lines by the condensingfiltering action of the Condensifilter.



Electro Hydraulic Valve Actuator

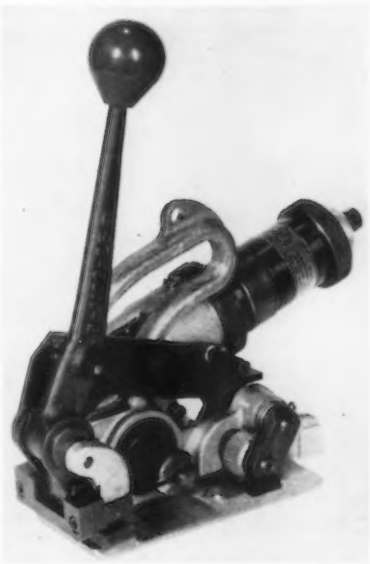
A new addition to the company's line of valve actuators is announced by Askania Regulator Co. The new actuator is designed to operate from signals supplied by commercially available controllers, remote positioning devices or directly from the measuring element. The self contained unit is designed for valves with from ½ to 1½ inch full stroke which require less than 200 pounds thrust. Standard signal range is from 1 to 5, or from 4 to 8 milliamperes d.c. For a.c. signals, an internal rectifier is supplied with the unit. Electrical connections consist of only two signal wires and two wires for the power supply.

New Air-Powered Stretcher for Heavy Duty Strapping

A new air-powered stretcher, which easily tensions 1¼ in. heavy duty steel strapping, is now available from the Signode Steel Strapping Co., Chicago, Ill. This sturdy, compact, light-weight tool lets air power do the hand work of tensioning strapping on crates, skids, coil stock and freight car bracing. It speeds strapping operations by doing away with slow tensioning by hand.

The new stretcher Model WN-114 provides up to 3900 lbs. of predetermined tension and virtually eliminates operator fatigue which sometimes causes improper strapping. The air pressure may easily be set to give just the right amount of tension for any strapping operation.

Special features of the tool include a handy cutter attachment that quickly cuts off excess steel strapping and a rolling gripper, designed for long service, that makes it easy to disengage the strapping.



Dryden Bleached Sulphate Pulp Is in Production!

A year from now you will be glad you ordered a trial car today.

You will find Dryden's Northern Bleached Sulphate Pulp is equal in brightness, strength and cleanliness to the best European grades. Actual customers' tests have proved this repeatedly.

You will like the fact that all pulp is centri-cleaned and bleached with chlorine dioxide.

You will be assured of a dependable North American source of supply of quality pulp.

You will enjoy the stability of association with a member of the Anglo Group of Canadian Mills, one of Canada's largest and most experienced market pulp producers.

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Montreal 2, Quebec

67 Yonge Street,
Toronto 1, Ontario

NEWS OF ASSOCIATIONS

William D. May

New Physicist at Canadian Research

William Donald May has been appointed associate physicist in the Mechanical Pulping Division of the Pulp and Paper Research Institute of Canada. Replacing George Lamb, he will work with Dr. Atack on the fundamentals of the mechanical production of paper making fibres from wood.

New Economist for Canadian P & P Assn.

A. Milton Moore has been appointed economist of the Canadian Pulp and Paper Assn., Montreal. He has served with the Canadian Tax Foundation, the Department of Trade and Commerce and the Dominion Bureau of Statistics.

John Andrew

CPPA Appointment In Consolidation Plan

John Andrew has been appointed secretary of the Chemical and Mechanical Pulp Sections and of the Board Section of the Canadian Pulp and Paper Assn. The appointment of Mr. Andrew is part of a general plan to consolidate the work of the commodity sections of the association under his supervision. Mr. Andrew was formerly statistician of the association and will continue as secretary of the Wrapping Paper and Specialty Paper Sections. E. L. Murray succeeds Mr. Andrew as statistician of the association.

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NEWS OF SUPPLIERS

P. Manor

L. B. Lane

Rockwell Manufacturing Co. has promoted Paul A. Manor, chief engineer of its Barberton, Ohio, valve division, to chief engineer, Central Valve Research and Development Department at Pittsburgh, Pa.

Mr. Manor joined Rockwell in his most recent capacity in November, 1954, after 10 years as chief project engineer of Surface Combustion Corporation at Toledo, Ohio.

Albany Felt Co., Albany, N. Y. has appointed Lawrence B. Lane sales engineer. His present territory includes parts of Pennsylvania and Maryland. He replaces Joseph Tanner who recently was appointed a district sales manager. Mr. Lane previously had been associated with Carrier Air Conditioning Corp.

Minneapolis-Honeywell Regulator Co. has opened a new $1.5 million plant for the production of industrial valves for automation and the nation's expanding missile program.

The 120,000-sq.-ft. plant, located on a 25-acre site in Fort Washington's Industrial Park 12 miles north of downtown Philadelphia, provides manufacturing, research and development, sales and administrative facilities for Honeywell's Valve Division, oldest of the company's units with a history dating back to 1836.

Bristol Co. has moved its Newark, N. J. sales and service staff into new, enlarged offices at 744 Broad Street. Branch manager for the office is R. C. Bechert.

Crucible Steel Co. of America has appointed John W. Slattery general supervisor of Stainless Steel Field Sales, a newly-created position. He will maintain offices at Crucible headquarters in Pittsburgh. Mr. Slattery had been midwest supervisor of Stainless Steel Sales, with offices in Chicago.

K. G. Looker

R. A. Goodwillie

Beloit Iron Works has announced that K. G. Looker, Beloit sales engineer, has joined R. A. Goodwillie in Beloit's West Coast office. Mr. Goodwillie has maintained Beloit's West Coast office since 1951. Mr. Looker has been associated with Beloit for 13 years. A major portion of this time has been spent in the sales engineering department.

De Laval Steam Turbine Co., Trenton, N. J. and John Holroyd & Co., Ltd., of Milnrow, Lancashire, England, have announced an agreement effective July 15, 1957 to pool their engineering and manufacturing resources. A new jointly owned company, De Laval-Holroyd Inc., has been established.

Initially De Laval will market worm gear reducers manufactured by Holroyd in England, in addition to its own line.

Hooker Electrochemical Co., Niagara Falls, N. Y., has appointed three men to new positions in the product development section of the sales department. Dr. Thonet C. Dauphine has been appointed manager of product development—plastics; Carl I. Gochenour, manager of product development—chemicals; and Lloyd S. Bovier, administrative assistant to Dr. Stiegman.

Dr. Dauphine, a former instructor in chemical engineering at MIT, came to Hooker in 1951 as manager of sales development.

Mr. Gochenour, a Hetron® polyester sales supervisor in the Durez Plastics Division since 1956, came to Hooker in 1944.

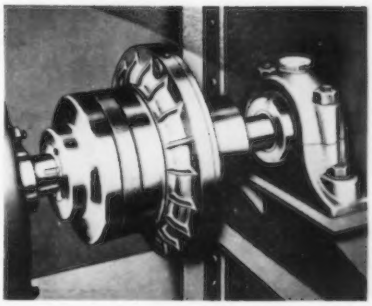
Mr. Bovier, a native of West Franklin, Pa., first came to Hooker in 1930, and has been new products supervisor since 1951.

Oakite Products, Inc., have announced the assignment of two technical service representatives.

Donald O. Mundale, the company's representative in Asheville, N. C., has been transferred to Marion, Ohio. James E. Davenport, a graduate in engineering from the United States Naval Academy, has been assigned to Rocky Mount, N. C. Mr. Davenport recently completed an intensive eight-week training program at Oakite's New York headquarters and in the field.

Larger Flexidyne Drives and Couplings

Flexidyne, the dry fluid drive introduced by Dodge Manufacturing Corp. two years ago, is now available in a larger size with horsepower ratings 50 per cent over the maximum recommended for drives and couplings of this type previously offered by Dodge. The new larger Flexidyne is recommended for use with motors rated up 75 hp. at 1750 r.p.m. Even larger sizes of this drive are undergoing field tests.



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Founded in 1761

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Gateway House, in the shadow of St. Paul's Cathedral, is the new headquarters of the Wiggins Teape Group of paper makers and merchants.

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Know Your Chip Yield!

Use a Merrick Weightometer* for Digester Loading — Easy to Install • Accurate • Automatic • Simple to Maintain

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"a brush is a brush is a brush"

Specify Jenkins' METLKOR — the original — the best *Metal Core* brush

METLKOR® CYLINDER BRUSHES and **LIFEWOOD®** WOOD BACKED BRUSHES

Poetically speaking, true, but there's no brush like a Jenkin's METLKOR Brush. Paper Mill men everywhere say it's true. There are "Look-Alikes", "Just-as-Goods", "Steals", "Terrific Bargains" but only one Jenkins' METLKOR. They are built better to perform better to last longer. Result . . . Improved product, greater satisfaction and economy.

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Kraft Papers . . . Bag, multiwall sack, envelope, asphalting, impregnating, waxing.

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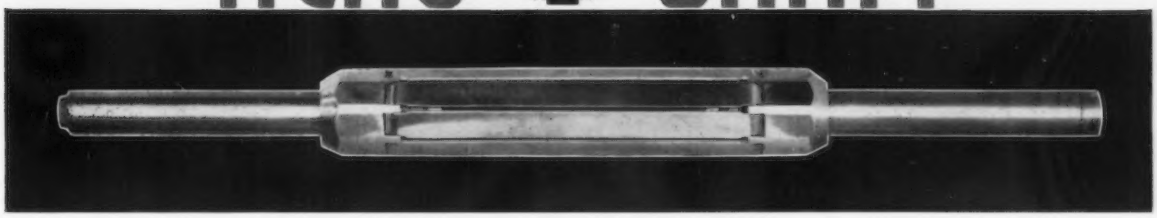
the Pneumatic expanding Core Shaft

AERO ® SHAFT



. . . non-slip grip releases instantly for removal

This cost-cutting tool saves time and labor. Aero-Shaft holds cores with a non-damaging, non-slip grip . . . but slips out or in easily by means of an instant-action release valve. No more hammers or wedges!

Compressed air presses 16 smooth steel edges firmly against core with a uniform tension that makes possible faster roll speeds, eliminates breaks due to core slippage. Press the release valve and tube deflates, so Aero-Shaft slips out or in easily. Double expanding rib section available for web widths over 40". Write for literature and prices . . . start saving now!

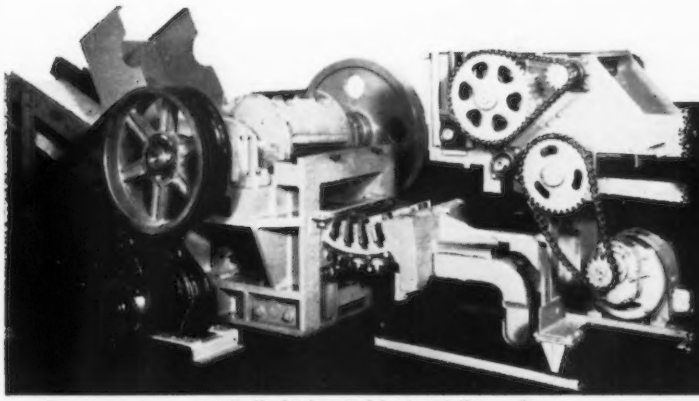
printing presses, rewinders, embossers, folders,
napkin and core machines and special converting machines

PAPER CONVERTING MACHINE COMPANY

GREEN BAY, WISCONSIN

P C M C

BEAT YOUR BEATING TIME BY USING TAYLOR-STILES CUTTERS !



TAYLOR-STILES *Multiplex* RAG CUTTERS

produce 12,000 uniform cuts per minute.

51J multiplex cutter with its feed pushed back and the cradle pulled out for knife setting.

The four knives in the revolving element, together with the 1 bed knife and 4 cradle knives, produce, at 600 RPM, 12,000 cuts per minute! This means a finer product—less time in the beaters or fewer beaters—or both.

In addition the four cradle knife design permits adjusting and clamping tight each knife individually, which assures much more efficient operation of the cutter.

TAYLOR-STILES makes a complete line of multiplex, single, and tandem cutters for cutting rags for building paper, roofing, fine writing paper, cigarette paper, etc.

FOR BEST RESULTS USE TAYLOR-STILES JOB ENGINEERED KNIVES.

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TAYLOR, STILES & CO. 10 Bridge Street Riegelsville, N. J.

Help Wanted

WANTED

Manager for kraft and sulphite pulp and paper mill; superintendent Cylinder wet machine mill; and many others.

CHARLES P. RAYMOND SERVICE, Inc.
Phone Liberty 2-6547
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COATING TECHNOLOGIST

Our Technical Department is looking for a man to head the machine coating program for our new paper mill. This mill will produce a variety of Fourdrinier bleached boards and specialties. Basic knowledge and experience with on-machine clay coating and ability to lead a program in developing new types of functional coatings are required. This is an outstanding opportunity for the right man.

Personnel Department
Riegel Paper Corporation
Carolina Division
Acme, North Carolina A-12

"WANTED"

MASTER MECHANIC, FOR TWO MACHINE BOARD MILL IN NORTHERN NEW JERSEY. IN REPLY STATE AGE, EXPERIENCE, PREVIOUS RECORD OF EMPLOYMENT.

ALL REPLIES HELD CONFIDENTIAL. ADDRESS BOX 57-107 CARE OF PAPER TRADE JOURNAL.
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WANTED

Master Mechanic for two-machine Fourdrinier Mill in Central Illinois. Good salary and working conditions. In reply, state age, experience, and previous record of employment.

Address Box 57-165 care Paper Trade Journal. TF

Sales and Production personnel are needed for several Pure-Pak carton plants to be located in various parts of the country. Please communicate with Potlatch Forests, Inc., Dairy Service Division, 20 North Wacker Drive, Chicago 6, Illinois.
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OPPORTUNITY

for an ambitious young Machine Tender to train for a position as Tour Boss in a high grade folding boxboard mill in New England area. Advancement possibilities very good. Applicant must have cylinder machine experience. Apply Box 57-179 care Paper Trade Journal. J-29

PAPER MILL
ASSISTANT SUPERINTENDENT

MUST HAVE EXPERIENCE RUNNING YANKEE MACHINE IN EXCESS OF 1000 F.P.M. AND BE EXPERIENCED MAKING TISSUE GRADE PAPER. START $7500.00 PER YEAR. EXCELLENT OPPORTUNITY FOR A CAPABLE, WILLING, AGRESSIVE INDIVIDUAL. REPLY STATING AGE, WILLINGNESS TO RELOCATE, AND FULL DETAILS OF QUALIFICATIONS TO BOX 57-194 CARE PAPER TRADE JOURNAL.
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Help Wanted

PAPER MEN

$5,000 to $50,000

SALES—PRODUCTION—TECHNICAL

Top mills, converters, and jobbers from Coast to Coast badly need qualified men at every level. Choice spots open in pulp, board, coarse, fine, folding, corrugated multi-wall bags, transparent packaging and paper specialties of all kinds.

I am a paper man myself. If your record of performance entitles you to increased responsibility and greater potential, I can and will help you to attain it. You may contact us in absolute confidence.

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Personnel Consultants to the Paper Industry
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MILL
SALES MANAGER
NEW ENGLAND

$17,500 to $25,000

Plus Profit Sharing Bonus

We have been engaged by the President of a very well known FINE AND MEDIUM FINE SPECIALTIES mill in New England to aid in the selection of a top flight sales executive able and willing to assume full responsibility for all marketing activities.

Historically, this mill has run standard fine grades on its two Fourdriniers, but is becoming increasingly active in medium fine specialties—principally direct process papers and other custom made grades. At present, about 20% of the total dollar volume is outside the graphic arts field. Top management wants to increase it to 50%. All tonnage marketed direct. No jobbers.

This is an exceptional career opportunity for a hard-hitting, ambitious, creative-minded merchandiser in the 35-50 age bracket capable of programming for and leading the way to at least $1,000,000 in new specialty business. Unlimited earning potential. Right man can become Vice President of Sales in near future.

Reply in absolute confidence to arrange personal conference at our expense.

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Paper Industry Consultants
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A-5

N. Y. AREA—Old established paper company requires man with practical experience of paper, board and foil laminating. Some supervisory experience desirable. Good possibilities for advancement to the right man. In reply, state age—experience—record of previous employment and all particulars to Box 57-200 care Paper Trade Journal. J-29

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We are now ready to interview for the following positions:

PROJECT ENGINEERS
ANALYTICAL CHEMISTS
SHIFT CONTROL SUPERVISORS

TWO TO FIVE YEARS EXPERIENCE IN SULPHATE PULPING AND BLEACH PREFERRED.

SEND COMPLETE RESUME OF EDUCATION, EXPERIENCE, AND SALARY REQUIREMENTS TO:

PERSONNEL MANAGER
CONTAINER CORPORATION OF AMERICA
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INDUSTRIAL ENGINEER

Paper Converting Machinery Manufacturer requires Industrial Engineer with broad shop knowledge. Experience with Corrugated Paper Industry especially helpful but not essential.

This position will entail methods improvement, contact with customers and instructing customers' personnel in the operation of our machinery. You must be willing to travel extensively.

A college degree is a prerequisit for this position. We offer excellent advancement possibilities with a company that is a leader in its field.

If you meet the above requirements, please send a brief resume to: Box #57-196 care Paper Trade Journal.
J-29

WANTED

A MAN FOR SAMPLE MAKING AND DESIGN WORK IN FOLDING BOX PLANT. SHOULD HAVE ONE TO TWO YEARS OF COLLEGE OR AT LEAST HIGH SCHOOL EDUCATION AND TWO OR THREE YEARS EXPERIENCE. PLANT LOCATED IN CENTRAL WISCONSIN. Address Box 57-198 care Paper Trade Journal. TF

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Personnel Consultants J-29

NORTHERN NEW YORK Paper Mill has an opening for an experienced Boss Machine Tender. Knowledge of specialty paper making essential. Good opportunity for advancement. Address Box 57-193 care Paper Trade Journal. A-12

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EXECUTIVE

Technically educated executive, age 44, with 20 years diversified experience in pulp and paper mill operation and management seeks increased responsibilities in manufacturing. Presently employed. Confidential inquiries invited. Address Box 57-185 care Paper Trade Journal. J-29

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The address for QUALITY GUARANTEED MACHINERY is 265 Passaic Street, Newark, 4, N. J.

"AQUABRUSHER"

1—Apmew Aquabrusher. Steel vat 15' dia. x 10' deep, with 75 H.P. motor and controls.

BEATERS

1—E. D. Jones "Bertram" 1500 lb. roll 72" x 63". C.I. tub, complete with Foxboro air cylinder control and washer.
1—Valley Iron Wks. 750 lbs. Iron Tub.

CALENDER STACKS

1—Sandy Hill 84" 7 roll with doctors.
1—Lobdell 86" five roll.
1—Farrel 152"—frames for 11 rolls with 5 rolls.
1—Farrel 128" 7 roll, complete.
1—B & C 124" 5 roll.
1—B & C 124" 7 roll.
1—B & C 72" 7 roll.

CONVERTING MACHINERY

1—Hobbs 24" x 38" die press.
1—Seybold Duplex 7" x 36" die press.
1—National model AS Auto. metal edger w/1 H.P. motor.
1—Hudson-Sharp model GL-2 2-ply laminator.

CYLINDER MOLDS

1—92" face x 30" dia.
1—102" face x 36" dia.
1—136" face x 54" dia. stainless steel covering.
3—73" face x 48" dia.
1—72" face x 48" diameter.
2—104" face x 36" diameter.

DRIVES

46—Inclosed RT. Angle and parallel. Reeves, P.I.V., etc. 2 H.P.—150 H.P.

DRYERS—HYDROSTATICALLY TESTED

2—42" face x 36" dia.
2—44" face x 36" dia.
2—46" face x 16" dia. & accessories.
2—46" face x 36" dia.
40—46" face x 24" dia. chrome plated & accessories.
58—46" face x 48" dia. chrome plated & accessories.
1—67" face x 36" dia.
1—68" face x 36" diameter.
2—70" face x 36" dia. with gears.
8—72" face x 36" dia. with AF bearings.
3—76" face x 36" dia. with gears.
10—80" face x 48" dia., with gears & bearings.
1—82" face x 48" dia., gears & bearings.
2—84" face x 28" dia.
1—84" face x 36" dia.
4—86" face x 36" dia. with gears.
2—88" face x 36" dia.
5—88" face x 48" dia. w/ace.
1—90" face x 18" dia. with A-F bearings.
13—90/ face x 48" dia. with gears & bearings.
1—104" face x 36" dia.
1—104" face x 48" dia.
1—110" face x 42" dia.
1—120" face x 42" dia.
1—124" face x 48" dia.
1—126" face x 48" dia.
17—127" face x 42" dia.
1—130" face x 48" dia.
1—138" face x 36" diameter.
2—160" face x 28" dia. with rope carriers.
10—160" face x 36" dia.
1—160" face x 42" dia.
14—160" face x 48" dia.

EMBOSSERS

1—80" Hudson Sharp Roller Bearing equipped. Complete from double unwind through double rewind including drive.

EXTRACTOR ROLLS—PLAIN & SUCTION

2—Dowingtown 24" diameter x 128" face, A.F. brgs. with 19" diameter rubber top roll & complete frame work.
1—Extractor roll section—Complete 1—22" dia. x 136" face suction extractor roll; 1—24" x 134" plain extractor with 18" x 136" R.C. couch roll.

FILTERS

1—Oliver continuous filter, cylinder 8 ft. diameter x 10 ft. face, steel vat. Used 2 months.

FLAT SCREENS

1—Impco 10 Plate—Dunbar drive, bronze vat.
1—12 plate Sandy Hill, Roller Shoe.
1—Bird Johnson S. S. screen 2 H.P. motor.

FOURDRINIER PAPER MACHINE

1—86" machine complete. Wire 86" x 68' 10". 2 press sections, 23 dryers 48" dia. Calender stack, pope reel, 2" drum winder, complete drives. Operated 415 F.P.M.

JORDANS

1—Appleton #2 anti-friction bearings.
1—E. D. Jones pony Jordans S. S. fillings.
1—Smith & Winchester with granite filling.
2—E. D. Jones standard with A. F. bearings.
1—E. D. Jones #4 (Imperial) with A. F. brg.
1—Shartle Miami #2 with A. F. bearings.
2—Shartle #1 Miami.

LABORATORY EQUIPMENT

Valley Iron Wks. pulp test equipment consisting of couch roll, sheet mould, hydraulic press, hot plate with boiler. Like new condition.

MOTORS

12—125 H.P. Westinghouse synchronous enclosed. Brand new 440 volt, 720 rpm.
1—300 H.P. West. 388 RPM. 440-3-60.
1—GE 350 H.P. syn. 3/60/2200—720 R.P.M.
4—GE 150 H.P. 3/60/440—435 R.P.M.
3—GE 100 H.P. 3/60/440—435 R.P.M.
1—GE 100 H.P. 3/60/440 695 R.P.M.

PULP EQUIPMENT

3—2 ft. x 8 ft. type 300 Tyler Niagara chip screens.
1—Jones pulp screen. Cylinder 40" dia. x 83".

PUMPS

44—Centrifugal Pumps open & closed impellers.
6—Shartle Centrifugal W.W. pumps 10" x 8".

REELS

1—Pusey & Jones 162" drum reel complete with unwind stand and water cooled brake.
1—138" English drum reel.

REFINERS

1—34" Southerland disc refiner, late model.
1—24" Dowingtown Weiner refiner. New.
2—Bauer double-disc model 185 C. w/two 75 H.P. motors each.
1—Diltz classifiner w/spare discs.

ROLL GRINDER

1—Farrel-Birmingham. Complete with crowning device and motor drive. For rolls 30" x 160"

ROLLS—PRESS, COUCH, CALENDER, ETC.

350 misc. rolls. Inquiries invited.
24—153" face x 5" dia. S.S. table rolls.
7—R.C. Couch 18" dia. x 132" face with brgs, frames, etc.
4—Sets primary presses 12", 14" & 16" dia. x 128" face. Bottom rolls bronze. Top rolls R.C.
3—Sets main presses 22" dia. x 129" face. Top rolls stonite or bronze bottom rolls R.C. Complete with frames, brgs. & drives.
1—Set B. and C. Crownless deflectionless main press rolls 22" dia. x 128" face R.C. Complete with A.F. brgs, framing. Foxboro Controls & rt. angle drive with clutch & pulley.

ROTARY SCREENS

3—#2A Bird with copper vats.
4—#3A Bird Model 100. All non-ferrous.
12—3A Model 100 Bird S. S. or copper vats, Inconel screen plates. Like new condition.
6—Bird 2A Model 100 complete with 2 motors, showers & S.S. mix boxes.

SAVEALLS

1—Bird #6 Saveall complete with couch.
1—Bird Saveall. Cylinder 72" x 36" with couch.
1—Bird Cylinder 92" x 36" with couch.

SHEETERS

1—B.C. 80" heavy duty Duplex board sheeter with 6 roll backstand and two Reeves drives.
1—Beck 54" with layboy and backstand.
1—Cameron 124" quick change double slitter assembly for board sheeters.
1—Dowingtown 124" heavy-duty duplex board cutter.
1—Hamblet 46" single knife.
1—Hamblet 55" with 3 roll back stand.
1—Hamblet 100" single knife with 3 slitters. Very heavy duty.
1—Hamblet 110" single knife sheeters.
1—Moore & White simplex 114" sheeter with slitters and counter. Maximum Layboy, 8 roll background motor and starter.
1—M & W 80" with layboy.

SHREDDERS

2—Mitts Merrill air fluff paper shredders.
1—Mitts Merrill #17—2A paper shredder.
2—Taylor Stiles giant stock Shredders, style 36.

SLITTERS & WINDERS

1—Cameron 52" Model 24-3A, duplex rewind.
1—Cameron 42" model 6.
1—Cameron 62" Model 6-30" rewind.
1—Cameron 72" model 10—14 heavy-duty—60" rewind.
1—Cameron 92" model 18—60" rewind.
1—Cameron 106" Model 14 Board Machine Winder, A. F. bearings equipped. 60" rewind.
1—Cameron 162" model 19-42" Rewind.
1—Cameron 194" model 19, anti-friction bearing, 2800 FPM. Equipped with air operated quick change, constant tension and roll ejector.
2—Essex 42" center wind—30" diameter duplex.
1—Fales 40"—1" and 1¼" knife set-ups.
1—Hudson Sharp 60"—for plastic coated papers.
1—Hudson-Sharp 72" high speed automatic wax roll and tissue roll converter.
1—Langston 40"—Shearcut.
2—Shultz 12" coreless rewind.
1—Schultz 18" automatic with motor.

STEAM JOINTS

40—Shartle Bros. steam joints with syphon pipes, for 8" journals, operated at 50 lb. S.P.

STEAM TURBINE

1—De Laval 100 H.P. Complete incl. reducer, governor, etc. Ratio 11.66—1.

SUCTION BOXES

3—Cast Aluminum for 190" wire—can be cut down
6—Brass for 94" wire.

SUCTION COUCH ROLLS

1—Sandusky 22" diameter x 135" drilled face.
1—Sandusky 18" diameter x 116" drilled face.
1—Sandusky 25" diameter x 122" drilled face.
1—Sandusky 18" diameter x 122" drilled face.
1—Millspaugh 30" diameter x 192" drilled face.
1—Sandusky 94" drilled face x 18" dia.
1—Sandusky 98" drilled face x 18" dia.

SUCTION PRESS ROLLS

1—Millspaugh 30" dia. x 194" drilled face.

SUPER CALENDERS

1—Norwood 30" 5 roll complete with motor drives.

TRIMMERS—POWER BACK GAUGES

1—Seybold 84"—Dayton with motor.
1—Seybold 72" 20th Century.
1—Seybold 45" model 10 Z.
1—Seybold 56" Dayton with motor.
1—Seybold 74" 20th Century rebuilt.

VACUUM PUMPS

1—Nash H-5.
1—Nash #6 Hytor.
1—Nash #8 Hytor.

VOITH INLETS

2—Valley Iron Voith Inlets, 86"—Brass lip, stainless steel apron.
1—Valley Iron Works inlet—106"
1—New Valley Iron Works 156" x 36" monel lined inlet and head box.
1—Bagley and Sewall 144" stainless steel clad high speed inlet and head box.

YANKEE DRYERS

1—Beloit 10' diameter x 132" face 35 #S.P.
1—Beloit 12' diameter x 140" face 75 #S.P.

ALWAYS YOUR CASH MARKET FOR SURPLUS MACHINERY

Situations Wanted

SUPERINTENDENT AVAILABLE: Recommend highly, American Paper Mill Superintendent 42 years old, just finishing 2 year contract, wishes to return to the U. S. Excellent qualifications, diligent and conscientious Paper-Maker. For full details write: CICSSA, F. L. Brown, President, Florida 1528-30, Montevideo, Uruguay. A-12

For Sale

FOR SALE

COUCH ROLLS
7—18" dia. x 132" face R.C. couch rolls, 2" R.C., journals 2-15/16" dia., complete with bearings, arms, etc.

EXTRACTOR SECTION
1—Downingtown 24" dia. x 134" face bronze plain extractor roll.
1—Downingtown 22" dia. x 136" face bronze suction extractor roll. This extractor section is complete with 18" dia. R.C. couch rolls, cast iron framing, top arms, doctors, air cylinders with valves & switches. All rolls are A.F. brg.

PRIMARY PRESS SECTION
4 Sets of primary press rolls, consisting of 4—12" dia., 4—14" dia., and 4—16" dia. x 128" face. Bottom rolls are cast iron with bronze jackets. Top rolls are R.C. These rolls are complete with bearings and Marshall drive.

MAIN PRESS SECTION
3 Sets of main presses, consisting of 2 stonite and 1 bronze jacketed 22" dia. x 129" face top press rolls in 3 R.C. 22" dia. x 128" face bottom press rolls. These press sections are complete with bearings, raising devices, frames, levers, 2 press roll doctors complete with oscillating drives. They are offered complete with 2 Falk right angle reduction gear drives rated at 22 H.P. each, ratio 9.09 to 1, complete with friction clutch, cone pulleys and belt guide.

CROWNLESS PRESS ROLL SECTION
1 Set of Black-Clawson 22" dia. x 128" face R.C. crownless deflectionless main press rolls, complete with A.F. brgs., framing, air cylinders & Foxboro control panel. This unit is offered complete with Philadelphia Gear Works right angle gear reducer rated at 100 HP, ratio 9.09 to 1, complete with friction clutch, cone pulleys and belt guide.

FELT STRETCHERS
5—Felt stretcher assemblies for use with above press sections, complete with cast iron stands and frames.

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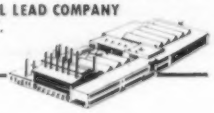

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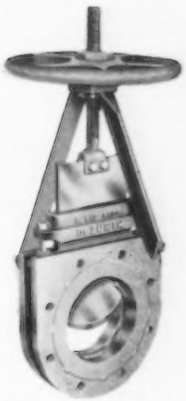

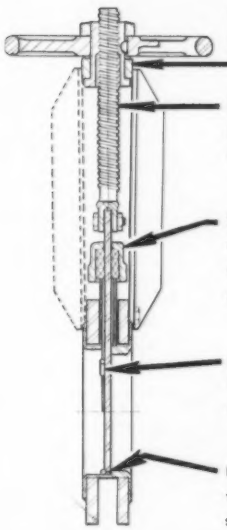

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Arthur E. Gordon, Business Mgr.

Frederick B. Grosse Production Mgr.

Francis J. Gordon
15 West 47th Street, New York 36, N. Y. Plaza 7-2370

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15 West 47th Street, New York 36, N. Y. Plaza 7-2370

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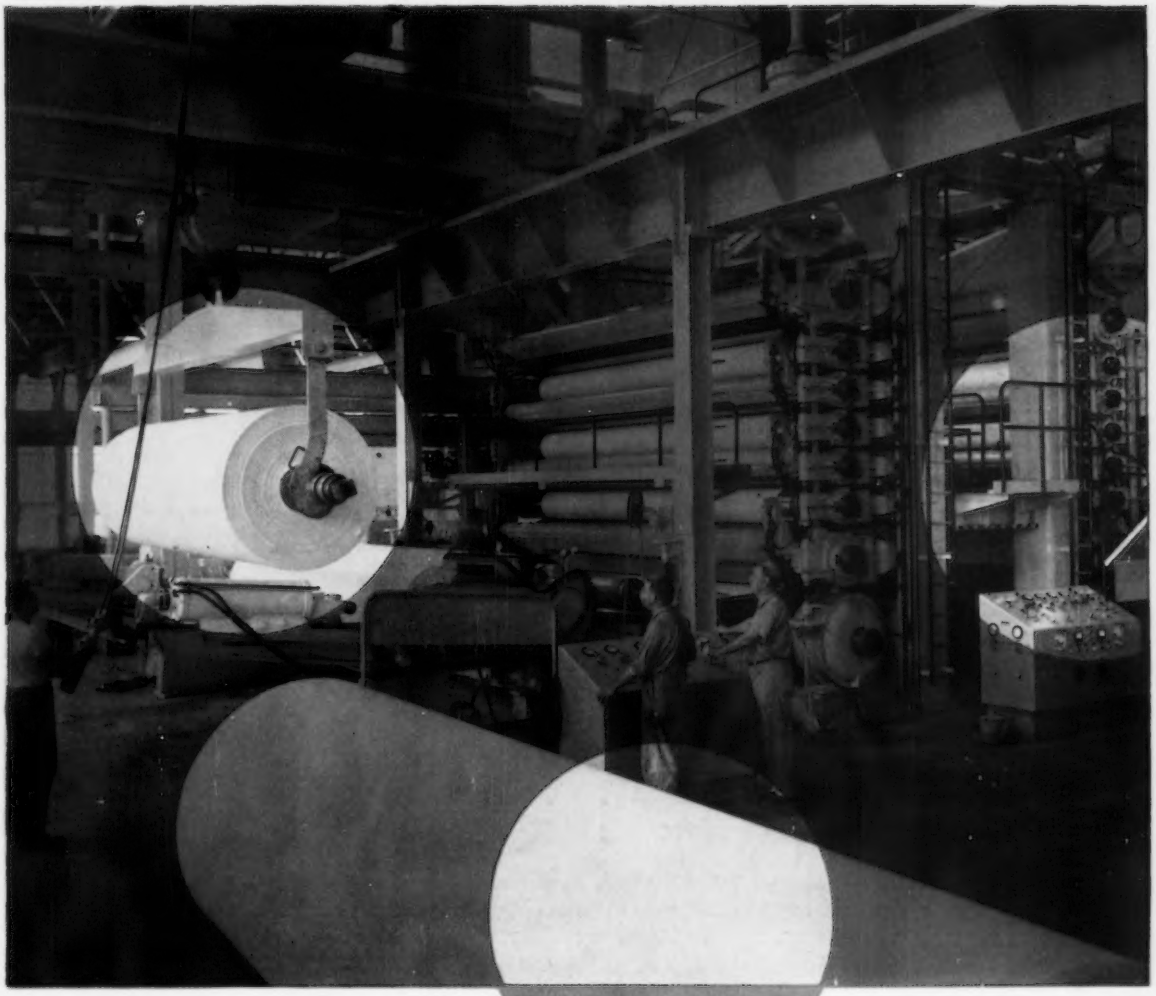

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